Gleanings in Bee Culture

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A Tree Colony vs. a Hive Colony

By R. E. Newell

Mr. C. M. Issacson in his Second Glances for October, 1944, Gleanings, brought out the fact that there is a considerable difference between the wintering conditions of a wild swarm of bees in a tree and a colony in a beehive. I had mentioned taking bees from bee trees in New Hampshire in my article on wintering. I always read Second Glances for Mr. Isaacson sums up the articles in Gleanings briefly and to the point.

Perhaps the greatest difference is that the wild swarm is left undisturbed and is able to build up a large reserve of honey and pollen. The combs are generally much deeper than those used in a hive. I have seen combs nearly six feet deep and almost two feet broad in large sugar maples. The entrance may be in the center, at the bottom, or at the top, but the food supply (honey and pollen) is always above the brood. Bees start comb building operations at the top and raise brood below the honey, and as the colony develops fresh nectar stored in the cells vacated by emerging bees crowds the queen and keeps her laying eggs in new comb.

When winter comes, the wild swarm may have from seventy-five to several hundred pounds of honey and a supply of pollen scattered from the top to the bottom of the comb. This pollen is generally covered with honey and is preserved. The cells that become empty as the late fall bees emerge form an ideal clustering space and as honey is consumed it is easy for the bees to move upward.

If the cavity is in an old tree such as a pine or maple, this may be well dried out, although I have seen bees occupy cavities that contained much moist, punky, decaying wood. This material generally dries out over a period of a year or more due to the heat of the cluster and the fanning of nectar.

Interference of Beekeepers Causes Winter Losses

The colony of bees in the hive would have more favorable conditions than the wild swarm, except for the interference of the beekeeper. Too many beekeepers are not satisfied with the **surplus** honey stored by a colony of bees but remove honey that is actually winter stores. Instead of leaving a full super above the colony brood chamber, many beekeepers extract down to the brood chamber.

The bees may winter under favorable conditions in a single story hive if empty frames at the sides are re-

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placed with full combs of honey and pollen, but the central combs (at least four or five) should be only about two thirds full to provide a winter clustering space at the bottom.

In a single story hive the bees must move along the combs as the honey is consumed; they cannot move upward as those in a bee tree or two story hive. Therefore, I like to invert the inner cover to provide a chance for the bees to move over the top of the frames. If a burlap or oil cloth is laid over the frames some provision should be made to allow the bees to cross over the tops of the frames. A queen excluder or several sticks across the tops of the frames would answer the purpose. With a wide space above the frames, bees cluster in this space and it is easy for them to reach stores at all times.

Langstroth always stressed the accessibility of the honey and pollen to the bees. Many of the old-time beekeepers cut holes through the combs in the brood chamber to allow the bees to pass through the combs. The winter clusters were small in those days due to small hives, when compared to the double and triple brood chambers of today.

With the larger clusters we have at present the bees cover at least six combs completely, and a strong colony will cover eight or more combs even in the coldest weather. In the old days the bees covered only the lower portion of the combs and were unable to pass over the tops, so the central openings through the combs had some advantage. Today in opening colonies during zero weather we find bees clustered closely between the top of the frames and the inner cover, and enclosing the honey of the frames from the top to the bottom. Therefore, if the supply of honey becomes used up on one side of the hive the bees are able to move over to a fresh supply.

With the double brood chamber system of management the bees occupy the combs in the lower chamber during late fall and early winter, and the bees covering the tops of the combs in the lower story may easily move upward or from side to side in search of fresh stores. With the two or three story brood chamber the bees are better off than the bees in the tree cavity. They are able to pass from side to side between the sets of frames as well as upward, in search of stores.

I believe the point Mr. Isaacson referred to was the bountiful supply of pollen and honey in the bee tree that is always accessible to the bees. **Man is the cause of bees not wintering.** Colonies are robbed of stores in late fall which causes them to restrict brood rearing. The beekeeper often places full combs in the center of the brood chamber, disrupting the winter clustering space of the colony. None of these faulty practices is endured by the bees in the tree cavity.

Our winter losses should be under 5 percent and not 50 percent. Colonies with failing queens should form the bulk of our winter losses and not just plain starvation. With close attention to providing good queens at all times this loss is very small. A queenless colony found in early spring may be united with a moderate size colony, and divided again when queens are available, with a minimum loss.

Holliston, Mass.

Two skyscraper hives in an apiary adjoining Pellett's Gardens in Atlantic, Iowa. Picture taken by Jack Deyell July 11, 1945.

Combs, Queens, and the Winter Cluster

By Shirl Baker

Good combs of worker cells and good queens are two important requirements for maintaining strong colonies of bees. Poor combs containing drone cells or otherwise defective should be culled out and disposed of. We find that during the spring check up is the best time for this work of culling combs.

At the close of the main white honey flow the hives will contain quite a percentage of old worn out bees. That is the time to start getting colonies in condition for winter.

Requeening and culling of poor queens should begin soon after the white honey flow starts to taper off. We find it a good plan in this locality to confine the queens to a single hive body from about July 1st on through the season. However, they are allowed three bodies for brood from about June 1st until the flow starts, sometime around June 20th. If we have the queen and brood all in one body at this time it saves much time in requeening. Then, too, by having a compact brood nest one is better able to judge the laying ability of the queen heading the colony.

In requeening, the brood pattern of each colony is carefully studied. Any queens that do not fill the combs fully with brood are replaced; also those that have raised cappings in worker cells. Those that have scattered brood are culled out. Queens that have larvae almost ready for sealing and right alongside eggs and very young larvae had best be replaced. Only those with two or more combs capped solid and with two or more combs of open brood are left for another season. Queens capable of maintaining a strong compact brood nest are necessary for the fall build-up. We do not believe in requeening each colony every year, as by so doing some choice queens are killed. We have better success culling out the poor ones.

Since we winter in double chamber hives we have found it best to keep the food chamber at the top, with supers between. Honey flows are too uncertain with us for top supering. When the white honey is removed an extra super is left with the bees, making the hive three stories high.

This third body, directly above the excluder, should be fairly well filled with honey. Then in case a fall flow does not occur it can be used by the bees during the late summer and fall. Should a later flow develop, more room will be needed to prevent crowding the brood nest. If the body containing the queen is somewhat honey-bound at the close of the clover flow, we find that it does no harm, as it will either be used by the bees or will be moved above.

We try to have good vigorous queens in all colonies by Aug. 20th. With good egg production from then on we are quite certain to have a good sized cluster of young bees at the end of the brood rearing season.

We have found giving good combs and good queens during the last part of the season to be the best investment we can make for having the bees ready for the flow some time the following June. Of course a few colonies for some reason or other will fail to come through to the spring season in prime condition. However, the percentage is small if proper requirements are provided during late summer and fall.

A cluster made up of young bees that have not participated in a honey flow is essential to good wintering. They are more quiet during the inactive season, thereby being able to save on food consumption and bringing the colony to the heavy brood season with a fine force of bees.

Contrary to the present idea of winter brood rearing, we don't like to have the queens start laying until March, or until natural pollen is not far away. We believe that when a colony goes into winter with a nice cluster of young bees it helps to hold the queen from too early activity.

Rodney, Mich.

Our Cover Picture

These colonies of bees are well sheltered at the side of an English garden. The picture was sent by A. H. Bowen, Cheltenham, England.

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Studies on Relation of Honeybee Activity to Seed Setting in Red Clover

By I. J. Johnson
Farm Crops Subsection, Iowa State College, Ames, Iowa
[Reprint of Talk given at Atlantic, Iowa, July 12, 1946]

The need for increased seed production in our legume forage crops has never been more pressing than it is today. For the past several years an effort has been made by government agencies to increase the quantity of forage crops seed by payment of subsidies for harvesting seed to meet the needs of our own farmers as well as those of our allies abroad. With increased emphasis, however, on the production of food crops vital in wartime, for increased dairy and meat production, the acreage available for seed harvest has diminished to a point where serious shortages have occurred. With the expected return in peace time of less intensive cropping and expanded acreages of forage crops the significance of adequate seed supplies is quite apparent.

There are two basic methods of increasing seed production: (1) by increasing the acreage of harvested seed, and (2) by increasing the yield of seed per acre on the existing acreages. It is in the second method that research on forage seed production may play an important part. In the final analysis, the success of any seed production enterprise by farmers will be dependent upon its profit in relation to other farm enterprises. It has been extremely gratifying to agronomists that so many agencies, including beekeepers' associations, have been sufficiently concerned with this problem to request research funds to study forage crop seed problems.

From a grant-in-aid made by the Iowa Beekeepers' Association to the Iowa Agriculture Experiment Station a research project has been initiated to study the relation of honeybee activity to seed setting in red clover. Previous investigations, particularly those in Ohio and Wyoming, have clearly indicated that honeybees may have a definitely beneficial influence of seed setting in red clover. Since conditions in other states may be somewhat different from those in Iowa, it seemed desirable to extend these studies and to include certain phases not fully covered by other investigators.

To fully understand the problems in seed production in red clover, a few basic concepts should be briefly outlined. Red clover, like many of the legumes including white and alsike clover, alfalfa, birdsfoot trefoil, and yellow blossom sweetclover, is genetically self sterile. To enable fertilization it is therefore necessary that pollen from a plant (or plants) with different sterility allels be transferred to the stigma of the flower in question. The number of sterility allels is comparatively large in a population of red clover plants and hence very little liklihood exists for duplication of sterility genes among plants. Because the anthers and stigma are enclosed within the keel of the flower it is necessary that some agency other than wind transfer the pollen from one flower to the other. The number and kinds of insects that visit flowers for the purpose of collecting nectar and/or pollen is probably very large. From the standpoint of the farmer, the kinds of pollinating insects involved are probably not important providing they effectively transfer pollen and thus make possible fertilization of the flower and subsequent seed formation. It is important to him, however, that the population of pollinating insects be present at the proper time in adequate numbers to insure complete cross-pollination. It is generally conceded that the natural populations of pollinating insects varies with climatic factors as evidenced by wide variations in seed production. More adequate control of pollinating insects to insure consistency of seed production then becomes a major factor in the success of his seed production enterprise. It should not be overlooked, however, that adequacy of cross pollination is only one of many factors that influence seed production. Climatic factors, plant diseases, soil conditions, and management prac-

tices also are important in the production of seed crops. Control of harmful insects that may injure the plant or destroy the seed after it is formed may be equally as important as providing beneficial insects. Thus we must conclude that the production of high yields of legume seed is a combination of many factors—any one of which may become the major factor in limiting seed yields. When the combination of all factors is present in the optimum degree, the potentiality for seed production will be at its maximum. It is the objective of a well planned research program to isolate and measure the effects of the various components so that adequate controls and sound production practices can be established.

But let us return to the discussion specifically on red clover. Agronomic practices for optimum red clover production have been fairly well established within the state. Fortunately insects destructive to seed formation are not as prevalent on red clover in Iowa as is true for alfalfa in the western states. The problem of pollinating insects is, however, not fully understood. Conflicting viewpoints have been voiced on the suitability of red clover as a honey plant—a question that intimately concerns the beekeeper and reflects in his willingness to provide honeybees for pollination. In very general terms it may be stated that the pollen tube in red clover is longer than the tongue of a honeybee, making it difficult for a bee to obtain nectar. Apparently under certain conditions honeybees can obtain nectar since full loads of nectar have been found in the nectar sacs of honeybees collected from red clover fields. The sugar content of red clover nectar may be somewhat lower than from other well established honey plants, a definite factor in honey yields. It is generally concluded, however, that honeybees collect considerable quantities of pollen from red clover. To the farmer it probably makes little difference whether bees collect nectar or pollen provided the bees are sufficiently active to insure cross pollination, but to the beekeeper this becomes a question of first importance in relation to a fair basis of establishing service fees for bees moved to red clover fields to perform cross pollination. Finally, the problem of bee pollination of red clover is complicated by existence of competing honey plants which may attract bees to nearby fields.

The above generalized statements serve to emphasize the need for research to clarify the entire problem of the effectiveness of honeybees as pollinators of red clover. To obtain information relative to these problems, four farms were selected in June, 1945, for detailed studies on the relation of the honeybee activity to seed setting in red clover. The general outline of the program on each of the four farms is given below:

1. Freeman farm near Adel, Iowa.
   Twenty-nine colonies of honeybees were moved by Mr. Jessup adjacent to an 18-acre field of red clover.
2. Harp farm near Pleasantville, Iowa.
   Thirty-five colonies of bees were secured from Mr. Goebbells and moved beside a 15-acre field of Emerson red clover. The county farm bureau and the Soil Conservation Service cooperated in this study by payment of a portion of the costs for the honeybees to Mr. Geobbells.
3. Timson farm near Independence, Iowa.
   Thirty colonies of bees owned by Mr. Timson were located less than one-fourth mile from an 18-acre red clover field. This was an excellent arrangement since the honeybees had been purchased primarily as a joint enterprise in honey and clover seed production on this farm.
4. Thurn farm near Edgewood, Ia.
   Over 100 colonies of honeybees were owned by Mr. Thurn who also had produced good crops of red clover seed regularly for several years. The colonies were less than one-eighth mile from a 14-acre red clover field, and provided an excellent opportunity to study an unusually high concentration of bee colonies per acre.

In each of the four fields under study it is planned to visit the farms during the period of blooming to determine the prevalence of honeybees and other insects and their activity in pollination. When the seed crop is ready for harvest another

(Continued on page 521)

Weighing Hives with the Bathroom Scales

By Stewart Becker

There are two easy methods of using a bathroom scales for weighing hives. In the method shown in Fig. 1, a rack is constructed so that the hive is raised off the scales platform about six inches so that the scales can be read through a hole. This opening is easily seen in Fig. 1. If the hive is not raised off the scales as shown, it covers the dial on the scales so the weight cannot be read. The disadvantage of this method is that the hive must be lifted on the rack in order to weigh it. Be sure to reset the zero on the scales to allow for the weight of the rack.

The second method is shown in Fig. 2 and 3. Fig. 2 shows the two strips which are required, plus the bathroom scales. Fig. 3 shows a hive in place being weighed by this method. The two strips are planed or sawed so as to have pointed tops. These pointed tops serve the same function that knife edges serve in balances, namely to allow easy rocking and to prevent position errors which would be present if the hive rocked first on the front edge, then the flat, and then the back edge. A hand slot is cut in the center of these two strips as shown to make it easy to get your fingers out from under the hive after it has been put in place. When using this method, first raise up the back of the hive and put the long strip under the back board of the hive stand. Then raise the front of the hive and slip the scales with the short piece on it under the hive stand as shown in Fig. 3. The scales will not indicate the full weight of the hive because the back strip is the supporting part of the weight. By first weighing a few hives by either method No. 1 or some other method, the multiplying factor to use with method No. 2 is readily determined. With the arrangement shown in Fig. 3, the multiplying factor is 2.75. This means that the reading on the scales must be multiplied by 2.75 to get the actual weight of the hive.

Method No. 2 is easier to use than method No. 1 because the hives do not have to be lifted bodily onto the rack on the scales but has the disadvantage of having to determine the multiplying factor. For this reason it is probably less accurate than method No. 1 because the multiplying factor depends upon the relative spacing of the two strip supports with regard to the center of the hive. For example, if the multiplying fac-

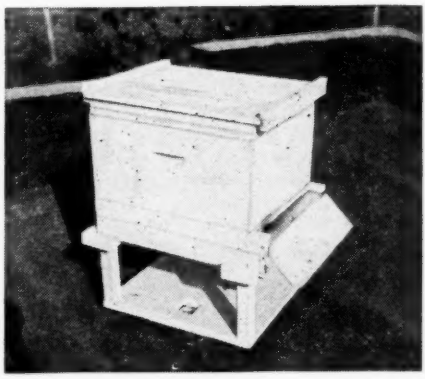


Fig. 1.

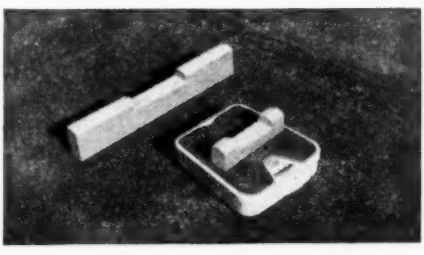


Fig. 2.

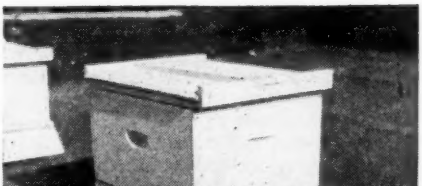


Fig. 3.

tor is determined for a hive with a slanting landing board on the stand as shown in Fig. 3, this factor will not be correct for a hive without a stand or a hive with a stand which does not stick out the same distance from the front of the hive. A hive with a stand which sticks out farther than the one with which the multiplying factor was determined will weigh too light, and a hive without a stand at all will weigh too heavy because the point support will be in too far.

The purposes of weighing hives are to determine the extent of the honey flow and to be sure that sufficient honey is left for the bees in the fall. Also, by weighing the hives occasionally during the winter, it can be determined whether the bees have sufficient honey to last until they can again gather nectar. Weighing is superior to inspecting because the hive does not have to be opened and cold air let into it or the bees disturbed.

A hive as shown in Fig.3, without bees or honey but with frames and foundation, weighs about 40 pounds. With bees and the brood chamber full of honey it weighs about 100 pounds. Allowing five pounds for the bees, this means about 55 pounds of honey. From this it is easy to determine whether a colony has enough honey for the winter and to check on honey consumption during the winter. An average colony will consume about five pounds of honey a month during the winter. This will obviously depend upon the weather but is average for Denver, Colorado. Also, double brood chamber hives will obviously weigh more.

A hive permanently mounted on a scales is an interesting barometer for checking the honey flow during the summer. During the height of the honey flow, a strong colony may add 25 pounds of honey in a single day. A graph of daily weights will show the actual honey flow for that season. Such a graph is not only of passing interest but may aid the apiarist greatly in managing his apiary.

Denver, Colorado.

[As Mr. Becker says, a hive on scales is an interesting barometer of activities in the apiary. We have had a scale hive in our home apiary for some years. A daily record of weights is of interest at the close of each season and also during succeeding seasons.—Ed.]

Does the Common Horsechestnut Possess Materials Toxic to Bees?

By F. R. Shaw
Massachusetts State College

It is well known that the California Buckeye secretes a substance in the nectar and pollen that is toxic to bees. Recently some observations were made that would indicate that the common horsechestnut might at times contain substances harmful to bees.

The matter was first called to attention by students who noted many bees crawling or lying dead under four horsechestnut trees on the campus. Both honeybees and bumblebees were found. They seemed unable to fly, would crawl about and then settle down. The author was out of town when this was first reported and was unable to verify the observations. However, about a week later, following a period of inclement weather, it was reported that dead bumblebees and honeybees were being noted under the trees. At this time the author examined the area. A total of eight bumblebees and twenty honeybees was found. It is thought likely that there were more than this number present since some crushed remains of dead insects were also found but they could not be positively identified as bees.

Upon investigating, it was determined that no harmful spray materials had been applied. Hence the presence of so many bees indicates that something in the vicinity of the trees was responsible for the death of the bees. Hence the question is raised, "Does the Common Horsechestnut Possess Materials Toxic to Honeybees?"

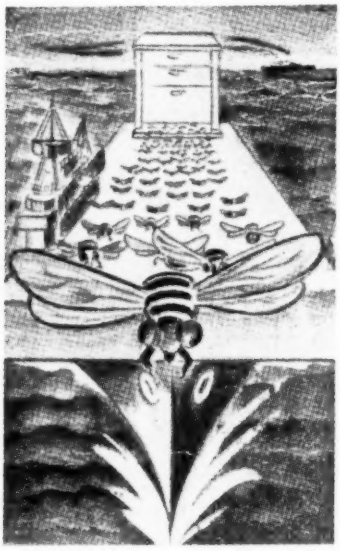
Amherst, Mass.

Behavior of the Bee Cluster

Atomic Bombs in Beekeeping

By E. L. Sechrist

Mr. Sechrist, formerly assistant to James I. Hambleton, Chief of Bureau of Entomology at Beltsville, Md., has recently been doing experimental work on bees.



Our secret weapon to end all wars —Picture by K. Hawkins

Part One

This picture was sent to me, months ago, by a man well known to beekeepers. I've just been stumbling onto the truth in it. When bees, in producing heat, can make 45,000 British thermal Units out of a pound of honey instead of the book value of 5,000 British thermal Units, how do you suppose they do it? Is it by splitting the atom? And when they make beeswax, or produce that mysterious royal jelly or brood food that amazes us by its power to produce rapid growth in the bee larvae, what are they doing but controlling atomic energy?

For ages this has been going on, and we are just now discovering it! However, we are not yet using constructively the scientific application of thermodynamics to apiculture and to scientific pollination, in our war to end all wars.

Cluster Activity

It is well known to beekeepers that a colony can, and does, to a great extent, control the conditions under which it lives. In winter, it keeps the hive warm as long as it can do so and then concentrates its energy on keeping the inside of the cluster warm enough to keep alive at least some of the bees. This is done by eating more honey and exerting more activity—metabolic activity, which is the transformation of food into body tissue and into heat.

In the hot season, the colony tries to keep down excessive heat by ventilating the hive by fanning and by carrying in water and evaporating it. However, the heat may become too great for the colony to keep under control, just as in winter the loss of heat may become too great to be controlled by the efforts of the colony.

What the Bee Colony Must Do

Let us look at the situation which the bee colony must endeavor to meet, in summer and in winter, in a 2-story 10-frame Langstroth hive. This hive has about 14 square feet of surface, through which heat may be lost when the outside temperature of the hive is lower than the best or optimum temperature for winter. 57 to 58 degrees when the bees are clustered loosely and at rest, consuming a minimum of honey.

With the temperature at 58, the normal cluster produces about 13 degrees of heat by its normal metabolic activity. This metabolism is largely due to the oxidizing of the honey consumed, a sort of slow burning, which produces heat. This 13 degrees they naturally produce, and should be allowed to produce. Therefore, we keep the cellar temperature at 45 degrees—58 minus 13 equals 45. We have found out, by trial and error, that bees winter best when the temperature of the air in the hive around the cluster, the "ambient" temperature, is 45 degrees, and this is true in the cellar or outdoors. If the cellar temperature rises higher than 45 degrees, the bees become uneasy, and suffer. If they were outside when the temperature rose to 55 or 60 degrees, they would, of course, fly out, which is perfectly normal. Thus they would keep the

cluster temperature from rising high enough to produce ill effects.

At this 58 degree cluster temperature the bees can break their loose cluster and move around in the hive from combs of honey they have emptied to other combs containing honey. However, if the temperature gradually goes lower than 58 because of falling outside temperature, the cluster may not move, but may contract, and will contract more and more, with the bees in the interior of the cluster increasing their activity in order to produce more heat, endeavoring, by turning honey into heat and energy, to keep the colony alive. But if the temperature continues to be low and if it continues low for too long a time the colony dies, usually because it has consumed all the honey within the cluster and can not move to a new area. Thus it may starve to death within a few inches of plenty of honey because it cannot break the cluster. If the temperature is not too low the cluster breaks and reforms again and again, and may consume all the honey in the hive before starving.

Difference Between a Few Bees and a Cluster

A few bees do not produce enough heat to make a noticeable change in the temperature around them. Their bodily temperature seems to rise or fall with the temperature of the air. A few bees cannot stand much cold or heat. Therefore, they have often been classed as "cold-blooded" animals, along with reptiles, fishes, and many other insects. While this appears to be correct, it is hardly a true statement. **The bee cluster** composed of some thousands of bees, can and does produce considerable quantities of heat, behaving like a warm-blooded animal, consequently many people prefer to think of the bee colony, or the cluster, as a warm-blooded animal. The exact figures for the heat produced by the metabolic activity of the bee cluster have been worked out and they are worth some study.

Cluster Temperatures

We know that the brood rearing temperature is about 93 degrees, and that the cluster, together with the developing brood, produces that temperature. This is the temperature of a warm-blooded animal; and the quantity of heat produced by a single bee in the cluster is measurable, by dividing the whole amount of heat produced by the colony by the number of bees in the colony.

Attempts have been made to take the temperature of a bee by inserting a tiny thermometer, or thermocouple, into the tissues of the bee, but a bee is too small for us to insert a clinical thermometer into its mouth, while to pierce the tissues, as we have tried to do in our own crude way, doesn't seem to make the bee happy, but seems to make it "hot", or to interfere in some way with its behavior. We cannot get correct temperature readings that way. But we can determine the amount of heat lost by the colony by radiation, conduction, and convection through the walls of the hive, and through the entrance by ventilation, and thus find out how much heat the colony produces.

The amount of heat produced by the colony and the energy thus used is astounding, and makes us feel as though we should do something about it.

We humans are warm-blooded with a temperature of about 98 degrees F. When the outdoor temperature is as low as zero, or as freezing, we make some kind of a fire to keep us warm. We want our houses at 70 or 80 degrees. Our bodies and our clothes do the rest. If we wear no clothes, then we want the higher temperature; but within the insulation of our clothes we can be comfortable in a temperature as low as 70—or lower if we have enough clothes.

The bee cluster wants that 58 degree temperature in winter or 93 degrees in summer and also in the cold days of spring when brood rearing begins. The cluster normally producing 13 degrees of heat, adds that 13 degrees to the 45 degrees, making it 58 degrees in winter. In the spring the temperature still may often be 45 degrees, and then the bees will raise it to 93 degrees by adding 48 degrees of heat. If the temperature falls to zero outside, that is something else, and then the bees really have to begin to work because they must then add 93 degrees of heat. If the bees could reason, as some people seem to think they do, would they, also, be wanting some kind of stove to keep them warm?

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Advertising Honey

By Milton H. Stricker

[This article was submitted in November, 1945.—Ed.]

It has been a long time since I have had a crop of honey large enough to require salesmanship. Since 1941 our crops have fallen far short of the demands of our customers. In fact, I never realized there were so many people who liked honey until sugar was rationed.

In normal years incidental to our pollination business which does ruin a colony's potential honey gathering ability, we were always able to produce 15 to 20 ton crops of sweet clover-sumac honey from 300 colonies that were moved into northern Jersey immediately after the fall of the apple blossoms in the southern part of the state. These colonies without any pampering were able to build up to sufficient strength by the time the sweet clover and sumac began to yield.

But lately our crops have fallen short of this Utopia which lasted about 15 years. This year, 1945, was the first time we have ever had to feed starving colonies during the summer months.

However, there were times in the old days when we had to take steps to move our honey crop. The first step was the selection of a reasonably attractive young lady with a penchant for advertising; one who wasn't afraid to meet the customers of a big grocery market and demonstrate nature's own product—honey.

We were fortunate enough to find one who had previous training in home economics and who knew enough about cookery so that the questions of housewives did not stop her. Then we exposed her to honey and honey cookery, getting her to try some of the Honey Institute recipes. If she liked honey, so much the better.

Liking the product to be sold is important. It is hard to fool a woman shopper, and if she asked after the honey sales talk: "Do you eat honey?" our honey demonstrator could come right back with a truthful light in her eyes: "Yes, and I like it, too!"

Our next step was contacting one of the large grocery markets that was handling our honey. We asked if we could demonstrate our product. The manager was more than willing, in fact, he was quite cooperative, placing an announcement in his regular store advertisement that was featured in the local newspaper.

Since the store's advertisement announced free samples, we decided to utilize one of the American Honey Institute's tested recipes.

We chose the honey date bars. Here is where we made a mistake—but not too serious a mistake. This recipe makes a delightful and delicious cakelike confection that can be cut into many sample sized squares. This should be made about a week before using as it absorbs moisture and becomes more eatable and also its ingredients age and mellow after baking, becoming twice as delectable a week after the making.

However, it was quite eatable and turned out well for our Friday and Saturday demonstration. To add prestige, we set up an immense supply of honey for sale and display. We completely filled one window with the honey and set up our stand in front of the doorway. At the doorway battery we set up a one-frame observation hive to attract attention. All this was presided over by our honey demonstrator.

Honey Display Attracts Attention

Upon entering the store, attention was naturally attracted to the honey display. It was that instant that our honey demonstrator went into action, passing a sample honey date bar to each customer. Every housewife was receptive to this idea and most men customers were agreeable. Perhaps in this case it was the "honey" serving rather than the honey served.

Those housewives who seemed interested in further conversation were given an actual taste of the product upon a graham cracker. Recipes were also passed to the individuals coming into the store.

Being a large and prosperous market, our representative had a very busy day, but few sales were made. This we couldn't understand, especially since people seemed so cor-

An attractive honey display—including the demonstrator

dially interested. Undaunted, we started Saturday's demonstration figuring that the whole idea was one of advertising and not selling. The first shoppers bought honey. We found that 24 hours had decided the "samplers" of the day before that honey was good "stuff" after all. Sales continued briskly and I had to bring in more honey before the store clerks had depleted the window display. Evidently the housewife "grapevine" had been buzzing busily in that small town that Friday night.

Shortly before the lunch hour our supply of honey bars was depleted and the honey on a cracker was resorted to. This seemed an advantage, as many women of the day before who weren't impressed by the honey date bars were pleased with the raw honey sample. Here I was greatly surprised by the number of faces that were counted twice on both days, showing that city ladies are different—far different from the country ladies who shop but once a week.

Some Bees Escape from Observation Hive

One incident happened to test the mettle of the young lady in charge of our stand, and if it had been anticipated, I would have decided that though she was a booster of honey, she was no friend of the bees. On both days many children flocked into the store to see the observation hive of bees. Surprisingly enough the bees were more interesting to them than the samples. One child blessed with more curiosity than the others pried the lid from the hive and the bees began to crawl down the outside. In the stress of that "moment fatale" amid the alarmed spectators, Miss Demonstrator scooped the bees back into the hive with her hands and clapped on the lid. Order was restored!

Upon my coming back to the store the clerks were quite complimentary of her courage and quick thinking. When I asked her about it, she replied, "I was so scared, I did not

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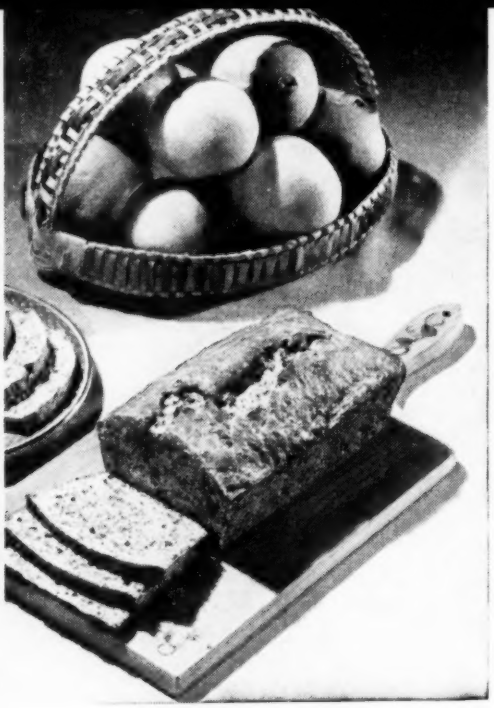

September Snacks

By Mrs. Benj. Nielsen

Fresh from the oven, or tucked in the lunch box, this month's selected treats are sure to make a hit with Dad and the younger generation as well. Mom will add her vote of acclamation, too, for they are all-honey-sweetened-triumphs — or hadn't you noticed? And, if you can restrain appetites that are sure to be goaded most unbearably by those tantalizing aromas that steal from the oven, even more sorely tempted by the sight of the crisp, rich, deep golden brown tones, you will find the flavor improved the second or third day, and even more pronounced as time goes by. This exquisite flavor improvement is just one of the many satisfying characteristics of honey cookery. To successfully keep these honey treasures so they may have a chance at flavor fullness, you might try baking when the family is away, permitting a draft to blow away tell-tale odors, then try to hide your baking results in the most unlikely places. (The above mentioned advice is given without much conviction behind it, for this honey cook can never successfully hide anything in the eating line!)

This month's recipes, by the way, call for ingredients you CAN buy from your grocer's shelf, not those used in those temptingly colored ads, designed to keep the advertisers' products in the public mind, yet leaving one with that "what's the-use" feeling as she half-heartedly reads through the recipe, knowing one or several of the ingredients are unavailable.

Happy results and good luck to you in your attempts to hide your honey treats for that satisfying "flavor improvement with age" period.

Honey orange bread.—Photo Courtesy Kellogg Co.

Honey Orange Bread

Two tablespoons shortening, 1 cup honey, 1 egg, 1½ tablespoons grated orange rind, 2½ cups sifted flour, 2½ teaspoons baking powder, ½ teaspoon soda, ½ teaspoon salt, ¾ cup orange juice, and 1 cup bran.

Blend shortening and honey; add egg and orange rind and beat well. Sift flour with baking powder, soda, and salt and add to first mixture alternately with orange juice. Add bran. Pour into greased loaf pan and bake in slow oven, 325 degrees F., for 1 hour and 10 minutes. Yield: 1 loaf (5¼ x 9⅓-inch pan).

Honey Date Nut Bread

One cup dates, stoned and cut in half, ¾ cup hot water, 1 cup honey, 1 egg, 1 tablespoon melted butter, 2 cups sifted flour, 1 teaspoon soda, ½ teaspoon salt, and 1 cup walnuts.

Pour hot water over dates and let stand 20 to 30 minutes. Add honey to well beaten egg; add butter. Add to softened dates. Stir in dry ingredients sifted together, adding nutmeats last. Pour into well greased loaf pan. Bake in slow oven, 325 degrees F., for about one hour.

Honey Currant Buns

One-half cup bran, ½ cup currants, ¾ cup milk, ¼ cup honey, 2 cups sifted flour, 4 teaspoons baking powder, 1 teaspoon salt, ¼ cup shortening, 1 tablespoon honey, and 1 tablespoon melted butter.

Combine bran, currants, milk, and honey. Allow to stand 10 minutes. Sift flour, baking powder, and salt

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Producing Better Beeswax

By H. H. Root

Keep Propolis Scrapings Separate

For several years, while OPA ceilings controlled the price of beeswax, color of the product was not recognized in any way and it was only natural that producers should use less care in sorting and handling it, since just as high a ceiling could be obtained for the dark beeswax as for the light colored. Since these ceilings have been removed most buyers are glad to pay a cent or two extra for clean, light lemon colored capping wax.

Up to a certain point a producer can actually realize more on light colored wax than if he permits scrapings of propolis and dirt to become mixed in the wax to increase the weight.

Color From Foreign Material

The color of pure beeswax as it comes from the wax glands of the honeybee is almost pure white. The various shades of light yellow, orange, or brown result from contact with other materials from outside the bee hive. Beeswax easily absorbs color from contact with surrounding materials. Gum from trees and shrubs gathered by the bees to form propolis with which to glue all cracks in the hive influence the color and properties of beeswax. Likewise, pollens stored in the comb quickly color the beeswax.

There are some sections of the country where highly colored pollens such as that from the dandelion give the wax a bright orange shade. While the wax may be bright and clean, nevertheless for some uses such as in church candles, cosmetics, etc., it is too difficult and too expensive to remove the color to permit the wax to be used for these purposes. There is little the producer can do under these circumstances except to segregate the brightly colored wax as much as possible from capping wax and other less colored waxes.

Never Overheat Beeswax

There are a number of reasons why beeswax should never be heated to a point hotter than 212 degrees Fahrenheit, the temperature of boiling water. First and foremost, beeswax has a flash point and unless it is heated over water there is the greatest danger of having the mass take fire. In that event, trying to put out the fire with water only causes an explosion with consequent danger of burning someone severely.

Secondly, overheating beeswax is very bad because even though it does not reach the flash point, it may break down until on cooling the product is soft and very unlike good firm wax.

Thirdly, the hotter the wax, the greater the discoloration through contact with certain metals. Beeswax may be so darkened even by low continued heat that it is entirely different from the original bright lemon yellow color. For best results the wax should never be heated except over water and even that heat should be maintained no longer than is necessary. Copper kettles and fittings should be avoided because of the danger of turning the wax green. An iron kettle, if clean, may be used if the temperature is kept low and not continued any longer than absolutely necessary.

The Sun Extractor Yields the Best Wax

Beeswax is still needed in large quantities. There is still a shortage and all producers should continue to save scraps. It is astonishing what an accumulation of beeswax will result if careful attention to saving scraps is observed. There are few places in the United States where there is not enough sunshine to warrant a solar wax extractor. While this may be any size, it pays to build it a size that will accommodate whatever large window sash may be obtained locally. It is a great advantage to use a double glass in order to concentrate the heat and to prevent loss of heat by radiation. If double glass sash can be obtained, well and good. However, there is always the difficulty of cleaning the inside surfaces of the glass. A more practical plan is to use a standard window frame with a removable storm sash on top. The latter can be removed for cleaning and this makes it possible to keep the underglass clean on both sides, too. For the greatest possible efficiency the glass

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Drone Bees Selected by Birds

By Chapman Grant

Reprinted from The Condor, Vol. 47, November-December, 1945, Number 6, pp. 261-264

I have kept a hive of bees on my garage roof in San Diego, California, for three years. Mockingbirds (Mimus polyglottos) and Black Phoebes (Sayornis nigricans) have lived in the garden and raised their families during this period without molesting the bees. This year I noticed the Mockingbirds standing on the roof and springing into the air to capture bees which they would pound on the roof and finally swallow. A little later on they were carrying away many bees and later still they brought two young and fed them from the roof a few feet from the entrance to the hives. In early July one of the Black Phoebes brought her three young and fed them regularly on bees. She would swoop near a hive, snap a bee in midair, and fly to a cornice where she pounded the bee a little and then crammed it down the throat of her ravenous young. This performance took place after the young Mockingbirds had left, but the adult Mockingbirds continued their depredations.

These observations were new to me and accordingly they were related to Mr. Clinton G. Abbott and Mr. Lawrence M. Huey of the San Diego Society of Natural History. Neither had ever heard of Mockingbirds eating bees. Further investigation led me to Mr. Geo. B. Wright, apiarist and for many years a dealer in bee supplies in San Diego. He stated that he had seen Mockingbirds eat bees and had had reports that California Jays (Aphelocoma californica) also ate them.

Mr. Fred Hansen, for 27 years bee inspector of San Diego County, stated that he had known Mockingbirds and Cliff Swallows (Petrochelidon albifrons) ate bees. He recalled that only that morning he had inspected 60 stands of bees at the home of Mrs. Ted Hopkins at Ocean Beach, San Diego, and that a flock of swallows was feeding on her bees. I asked Mr. Hansen how it was possible for a tender-mouthed swallow to feed on stinging bees. He replied that possibly they might be feeding on drones and that, contrary to common belief, drones fly about.

I immediately went to Ocean Beach and found a few swallows hawking around the apiary. The next day Mr. L. M. Huey accompanied me. There were probably thirty swallows circling around. We observed them catching the bees and they always flew immediately thereafter in the same direction, carrying their catch protruding from the mouth. We also noted bees following swallows for short distances. It seemed strange to me that birds as expert as swallows should do so much circling through the flying bees before making a capture. This fact recalled Mr. Hansen's statement that the swallows might be selecting drones from among the multitude of flying workers.

The following day Mr. Huey and I again visited the apiary and saw numerous swallows. Mr. Huey collected seven adults. One had a bee in its mouth, but it dropped it when shot and we were unable to locate the bee. We followed the line of flight and found the colony nesting under the eaves of the stucco home of Mrs. I. W. Parks about five city blocks from the apiary. There we collected 12 young from 3 of the 12 nests. The young were well feathered but still unable to fly. Mrs. Parks had intended to destroy the nests after the young departed because of the vermin with which the nests and birds were infested. The nests were alive with Barn Swallow bugs (Oeciacus vicarius) and fleas (Ceratophyllus gallinulae) which Mr. Chas. Harbison obligingly identified. Mr. Huey found the adults covered with the fleas, which adhered to the host. The trash in the nests contained wriggling flea larvae.

Mrs. Hopkins told us that a Black Pheobe had been in the habit of eating bees, sometimes as many as ten in rapid succession. We saw Mockingbirds eating bees at her apiary, but did not see the phoebe feeding.

Mr. Charles Harbison identified the stomach contents of the 7 adult and 12 young swallows. In the 7 adults he found three drones. Mr. Huey had already removed one drone from the throat of a specimen

he prepared. Thus the 7 adults contained 4 drones. One specimen contained a rose-weevil (Pantomorus godmani) as identified by Mr. Harbison. "Adults of this beetle do not fly and may be kept off trees by cotton or tanglefoot around the trunks" (Essig and Hoskins, Univ. Calif. Agr. Ext. Service, Circular 87, 1934:42). How then did the swallow capture the rose-weevil? The stomach contents of the 12 young included 12 drones. Five specimens contained one each; two had two each; one had three, and three had contents so far digested that identification was not made. The identifications were all from complete drone heads. No part of a worker bee was found. This finding apparently gives the Cliff Swallow a clean bill of health with the apiarist. As to the Mockingbird it would be interesting to determine the class of bee it eats, but inasmuch as it beats them before swallowing I believe that workers as well as drones may be taken.

Mr. Ed. Harrison of Encinitas, California, informs me that from his personal observation he knows that the Cassin Kingbird (Tyrannus vociferans), Western Kingbird (Tyrannus verticalis), Black Phoebe, and Western Wood Pewee (Myiochanes richardsonii) eat bees.

When I was a small boy at my present home in San Diego, there was a large eucalyptus tree in the yard. A pair of Western Kingbirds, "bee martins" to us, nested in this tree. Bees were attracted by the

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Following is a complete list of birds which are known to eat bees as compiled from the files of the U. S. Fish and Wildlife Service and kindly furnished by Mr. A. L. Nelson, Assistant Chief, Division of Wildlife Research:

The figures in the first column represent the number of stomachs in which bees were found; those in the second column represent the range of number of bees in stomachs.

Colymbus grisegena	Red-necked Grebe	2	1
Colymbus auritus	Horned Grebe	5	1-6
Butorides virescens	Green Heron	1	1
Buteo lineatus	Red-shouldered hawk	1	2
Bonasa umbellus	Ruffed Grouse	2	1
Phasianus colchicus	Ring-necked Pheasant	3	1
Fulica americana	American Coot	1	1
Squatarola squatarola	Black-bellied Plover	5	1-3
Arenaria interpres	Ruddy Turnstone	1	1
Larus philadelphia	Bonaparte Gull	1	1
Geococcyx californianus	California Road-runner	6	1-10
Melanerpes erythrocephalus	Red-headed woodpecker	1	1
Asyndesmus lewis	Lewis woodpecker	1	1
Tyrannus tyrannus	Eastern Kingbird	27	1-7
Tyrannus verticalis	Western Kingbird	6	1-12
Myiarchus crinitus	Crested Flycatcher	1	1
Myiochanes virens	Eastern Wood Pewee	2	1
Nuttallornis borealis	Olive-sided Flycatcher	16	1-10
Hirundo erythrogaster	Barn Swallow	1	1
Petrochelidon albifrons	Cliff Swallow	13	1-6
Progne subis	Purple Martin	5	1-3
Cyanocittastelleri	Steller Jay	3	1
Aphelocoma californica	California Jay	11	1-6
Pica pica	Black-billed Magpie	2	1
Corvus brachyrhynchos	American Crow	4	1-2
Heleodytes brunneicapillus	Cactus Wren	1	3
Mimus polyglottos	Mockingbird	4	1
Dumetella carolinensis	Catbird	1	1
Toxostoma rufum	Brown Thrasher	1	1
Toxostoma redivivum	California Thrasher	1	2
Turdus migratorius	Robin	2	1
Sialia sialis	Eastern Bluebird	1	1
Vireo belli	Bell Vireo	1	1
Vireo olivaceus	Red-eyed Vireo	1	1
Piranga erythromelas	Scarlet Tanager	5	1-12
Hedymeles melanocephalus	Black-headed Grosbeak	1	1
Zonotrichia coronata	Golden-crowned Sparrow	1	2

My Experience with Carniolans

By A. V. Thomson

My experience with bees adds up to quite a little, although I have never been a real commercial beekeeper. However, since I first dug out a swarm of bumblebees, as a small boy of eight, after "hiving" them in an old box and getting a lot of stings I have never been without bees of some sort when I was so situated that I could keep them. Blacks, Carniolans, Caucasians, Italians of three strains, Cyprians, and various hybrids, all were tried and all had some objectionable quality. One was vicious, another winter-killed badly, and I was not satisfied.

All I knew of beekeeping was to use an excluder and cut queen cells. Yes, I could requeen and transfer, also. Bees swarmed to their heart's delight and I either let them go or climbed trees all through the swarming season to recover the swarms. But I learned something about bees.

I finally settled on a strain of Golden Italians which suited me fairly well, but I sold out most of my stock, sent for some more and was informed that the gentleman was out of business and my money was returned.

Then I did some thinking. I remembered that the Carniolans I had years ago were pretty good bees. They did swarm a good deal, but that was due to the fact that they built up such big roaring colonies in such a short time. Perhaps a little modern beekeeping applied in the proper manner might help. They made a lot of nice white comb honey, did not rob, were gentle and easy to handle —pretty good bees after all. So I decided to try them and use what little I knew of modern beekeeping on them.

While this investigation was going on I learned of a "bargain in bees," looked it up and **found a nice** little apiary with considerable equipment for sale at a very low price and best of all, the bees were all Carniolans I invested, having meanwhile, sold the rest of my Italians. One of these queens was mismated and I replaced her with a purely mated Carniolan.

By following instructions I had no trouble with swarming, the bees fulfilled my fondest hopes, built up big strong colonies, and came through the winter in the finest possible condition.

Meanwhile I had been told by men who should know that I could get no surplus honey in this neighborhood, and that bees are lucky to get enough to live on. I had accepted these statements.

Although I am not a Missourian, I had to be "shown." Careful observation showed me a few things: (1), all colonies started in the spring built up good and strong by May 15; (2), divisions made in July and even stray swarms taken up to August 1 (in one case August 15) built up strong and wintered splendidly (baring what I called natural winter killing before I got my Carniolans).

There seemed to be a period from May 15 up to the first of July when there was a good chance to take some surplus. In 1944, I took a shallow super of choice light amber honey from each hive, proving that my surmise was well founded. The bees filled up their winter food chambers (full 10-frame supers) with fine honey and came through the winter in the best of order.

In 1945, I treated all hives the same and had the same results, then I let them fill a full-depth 10-frame super for themselves, which they did so quickly that I set the filled supers away and gave them all a shallow super to fill for me. At this writing, August 8, 1945, these supers were about full, so instead of one super, I will have **two** from pasture that "only would keep bees alive"—and the bees have an abundance of really choice honey for winter.

The way I handle this honey is to take a shallow extracting super (I use 10-frame), divide by wires into four new squares, insert a full sheet of thin super, let the bees fill this, then cut into squares (or near squares), let the cuts drain, wrap neatly in cellophane wrappers, label, and sell. If a thin sharp knife is used a very neat job is the result and the cut edge is not at all conspicuous. I pick out the smallest and weigh them, then the smallest of all and label "not less than—oz." according to weight of the smallest

cuts. The profit is fine, the honey sells quickly and looks very handsome in the cellophane wrapper. Our honey here is mostly amber and it looks very attractive in the beautiful, pearly white-capped combs the Carniolans build.

I am more than satisfied with these fine bees for the following reasons: (1), because they have proved for me the hardiest bee I ever handled; (2), I have never had any disease among them; (3), wax worms have no business around these big colonies; (4), they go into winter quarters with big two story (20-frame) colonies full of bees and come out **good** and **strong** in the spring; (5), after spring divisions, April 1, they build up rapidly and are waiting for the early honey flow; (6), they rear more or less brood all winter and go out to work on days when other bees stay inside (mine have worked every month this year, at least part time and they fly as far as four miles away, to my knowledge); (7), Carniolans are big husky bees and strong on the wing, even the drones are noted for this, and I have never had a mismated Carniolan queen as a result; (8), they do not rob; (9), they are gentle, quiet, and respond readily to manipulations, especially to swarm control; and are generally easy to handle. I have never had any of those pestiferous buzzing nuisances follow me all over the place since I took up Carniolans.

Though Carniolans do require a little more attention than some bees, to prevent swarming, it all adds up to this: I do no more than any beekeeper should do, and I get honey (not too much, but some) "where there is said to be no honey."

The following simple rules are mine for beekeeping and every beekeeper should follow them:

1. Do what is to be done.
2. Do it when it should be done.
3. Do it as it should be done.
4. Then look it over and do what you have forgotten.
5. Do your work a little sooner than needed and be a step or two ahead of the bees.

Benjamin Franklin said: "Drive thy business; let not thy business drive thee." This particularly applies to beekeeping.

Troutdale, Oregon.

Left to right: Dr. E. R. Root, Mrs. Lloyd, Interpreter, Madam Rosseau, Dr. M. Rosseau.

Gleanings has been honored by a visit from Dr. Maurice Rousseau and Madame Rousseau. Dr. Rousseau has been chosen to head the new Bee Culture Laboratory established in France, and he is making a tour of the United States and Canada in order to learn latest practices and methods in this country. His alertness and intimate knowledge of modern practice show that he is well fitted for his important work.. He is greatly helped by Madame Rousseau, who understands some English and is a great help to her husband in his work.

Dr. Rousseau studied at the Pasteur Institute, graduated from the French School of Medicine in Paris, specialized in Bacteriology and Bee Entomology. At the present time he is Director of the National Laboratory of Bee Culture with 10 years' experience with bees.

For France a new day is dawning in scientific beekeeping, and new bonds of neighborly fellowship are being fostered. For the industry in France a new leader has been selected—wise, modest, talented. Gleanings extends a hand in friendly greeting to these new friends, and congratulates the French speaking beekeepers everywhere for the new help they now have.

European Foulbrood Probably Not Spore Forming

A letter to E. R. Root from A. P. Sturtevant, Division of Bee Culture, Intermountain States, Bee Culture Laboratory, University of Wyoming, at Laramie.

In reply to your letter of November 19, it seems probable that your correspondent has in mind observations reported several years ago by A. G. Lochhead of the Department of Agriculture, Ottawa, Canada, as well as by C. E. Burnside of the U. S. Division of Bee Culture. The possibility was indicated in both reports that **Bacillus pluton** (White), a non-spore forming organism which has always been considered as the causative organism in European foulbrood, may not be an entity in itself but may be one stage in the life cycle of **Bacillus alvei,** a spore forming organism, known for a long time as commonly being associated with **B. pluton,** presumably as a secondary invader, in larvae dead of this disease. This life cycle manifestation known as "dissociation" or "pleomorphism" has been observed in numerous other bacterial organisms.

Lochhead in 1929 and later Burnside in 1934 reported work with cultures of **B. alvei** which indicated that this organism may be one of the type which, under varying growth conditions in culture media, can be made to show this so-called dissociation or life cycle pleomorphism. Both workers were able to cause vegetative rod cultures of the typical spore forming **B. alvei** to produce "pluton-like" forms which they considered one phase in the life cycle of **B. alvei.** If this should be true, it might help explain some of the mysterious outbreaks of European foulbrood, or how the disease is carried over from one season to another. However, the identity of the "pluton-like" forms they produced in cultures of **B. alvei,** with the typical lancet-shaped forms seen in stained smears of European foulbrood larvae known as **B. pluton,** is suggested only by the similarity of appearance under the microscope.

More recent work done by Prof. R. Burri of Switzerland, reported in the Bee World, indicates that he has made somewhat similar observations. He believes that White's **Bacterium eurydice** and **Bacillus pluton** are two stages in the life cycle of some organism but he makes no mention of any relationship between the **B. pluton** forms and **B. alvei.**

It never has been possible to infect colonies of bees with pure cultures of **Bacillus alvei.** This has been repeated by sufficient investigators to carry considerable weight. Also, so far as I know, all attempts to inoculate colonies of bees with cultures containing these "pluton-like" forms and cause typical European foulbrood never have been successful. No one to date has been able to transform **B. alvei** definitely into **B. pluton, Bacterium eurydice, Streptococcus apis,** or **B. orpheus.** Furthermore over a period of 25 or more years probably several hundreds of the many samples of European foulbrood have been examined by the Bee Culture Division Laboratory in which **B. alvei** could not be detected either microscopically or culturally.

The implications of the findings of Lochhead and Burnside are interesting and further work may bring out something of value. Unfortunately there has been no further research on this subject in this country since that reported above. Therefore, it is felt that until more research can be done on this problem, substantiated by successful colony inoculations which will produce typical European foulbrood by means of cultures, the cause of European foulbrood still should stand as being **Bacillus pluton** (White), a non-spore forming organism, with which other organisms hitherto known as secondary invaders, such as **Bacillus alvei,** etc., may or may not be associated.

The following are some of the references to work mentioned above:

Lochhead, A. G. 1929 Studies on the etiology of European foulbrood of bees. Transactions of the Fourth International Congress of Entomology. Vol. 11, p. 1005-1009.

Burnside, C. E. 1934. Studies on the bacteria associated with European foulbrood. Journal of Economic Entomology. Vol. 27, No. 3, p. 656-668.

References to Burri's work:

The casual organism of European foulbrood. (Bee Laboratory) Bee World. Vol. XXIII, No. 4, (April 1942) p. 29-30.

Bee Laboratory, Research Notes. Bee World. Vol. XXIV, No. 7 (July 1943) p. 54.

European foulbrood. Bee World. Vol. XXV, No. 3 (March 1944) p. 18.

Bee Laboratory, Research Notes. Bee World. Vol. XXV, No. 6, p. 46.

Live and Learn

By Propolis Pete

It's a little bit early to start talking about wintering bees, but since I am forever preaching about doing things in plenty of time, I might as well practice what I preach. So, this month we'll talk about wintering.

Not so many years ago, we had dinned into our ears at bee meetings and our eyes were wearied with propaganda in the bee magazines about heavy packing, and all the precautions to be taken when preparing bees for the winter.

When I first started in 1935 I had one colony which swarmed and gave me two colonies on the 4th of July. Came the middle of November, and full of ambition and literature, I started to build a container for each of these two hives. With 2 x 4's I made a heavy frame that could have made a winter tight bungalow for an Eskimo. I started at eight in the morning and by five that night I was finished. The next day I secured a piece of canvas about 8' x 8', and went to the woods for leaves. By eleven I had that hive snug and secure. That left me with another case to make, and leaves to gather, and only three hours to do it in.

Since I would not get a chance to do it again for a couple of weeks, I did a very daring thing. I grabbed a piece of old roofing, made a shell big enough to go around the hive, tied it with an old piece of rope, and filled it with leaves. This just took the three hours that I had, and I was satisfied that it was as good for the bees as the elaborate structure made for hive No. 1.

Every chance during the winter, I opened up the bottoms and raked out the wet soggy mass of dead bees and cappings. And both hives came through in fine shape, so I said to myself that the roofing paper was best for me. The next year I did all my hives that way in one day. I had five colonies the second year.

Well, this went on for another couple of years, without any winter loss, until something happened that made my face very, very red. All winter I was admiring the strength and virility of hive No. 10. I was dying for a peek into it, but to do it would have wrecked the whole packing. So I kept on admiring the flight and strength of that hive until it came time to unpack.

Imagine my surprise to find that I had forgotten to put leaves in the case the previous fall. I don't know how it happened, but believe it or not, there was the case completely empty, and that hive had come through better than any of the others. What would you do in a case like that? So did I. Next fall I simply wrapped tar paper around each hive.

Last winter I shot the works. Perhaps I should mention that in the intervening years I had gradually worked into the light-packing-upper flight-hole-plenty-of-honey- in - two bodies school of thought and I must say that my winter losses had been very small right along. I did lose some colonies, but they were the weak ones that either I left to see what would happen, or were not strong enough to stand the gaff, and were not worth saving anyway. So, last winter I shot the works.

My bees were protected on the north by an abandoned bungalow set in a small grove of locust trees, on the west by woods, on the east by more woods, and although open to the south, there was a peach orchard to break the wind. They had plenty of honey—in fact I left one of them three high. (You should have seen the population of that one on June 15th.) The only colony I lost was a weakish sort, in my opinion too strong to unite with another strong colony, yet a little under par by itself. I took the chance with my eyes open and it is my fault that they conked out.

That's all I did, excepting that I gave each colony an upper flight hole. Plenty of honey, plenty of wind protection, strong colonies, except the one I lost, and they came through. I am done with a lot of hard manual labor preparing for winter. Now I use the old noodle and save the back. But, if you want to do the same, use your noodle, too. What works for me might not work for you. But, anyway, try that light packing idea, or no packing at all if your bees are in a good wintering location where they are protected from the wind.

(Continued on page 523)

Planting Especially for the *Bees*

By J. E. Johnson

[The writer of this article is a pioneer fruit grower and beekeeper. His name has appeared frequently on the pages of Gleanings during the last half century and he has been a consistent expounder of the fact that the bees need the fruit blossoms and the fruit blossoms need the bees. He is an authority on pear blight, and one of the first to show that bees are not responsible for the spread of it. Almost reproachfully our friend points out that the bee journals of today do not have the wealth of material on honey plants that they did years ago. It is probable that commercial producers at least have found it costs less to move the bees to the forage plants rather than to plant especially for the bees, and yet for home apiaries and backlot beekeeping judicious planting of honey plants often saves the time and expense of feeding of sugar syrup for winter stores and for stimulating brood rearing.

The scores of letters Mr. Johnson received after the appearance of his article in Gleanings in April, 1944, indicate a renewed interest in improving local pasturage. The shortage of sugar for feeding no doubt accounts for this, and this shortage may continue well into 1947.

Mr. Johnson had four grandsons who went into military service. Two of them went all through France, Belgium, and Germany. They had narrow escapes but though badly frozen were not wounded. A third grandson was a captain and chief pilot in a big bomber. He made 62 missions over enemy territory, and the last time, his plane was so badly shot up that he had to make a forced landing in Belgium.—**Ed.**]

In my experience with bees and fruit extending back 60 years, I have had a great deal of trouble due to poisoning from arsenical sprays weakening the colonies so much that by the time they built up to normal strength again, the best part of the flow was over. I finally moved out of the main fruit belt and came to Verona, starting all over again with package bees. I made good with orchards of apples, peaches, and pears and sold over $1500 worth of strawberries one year from two acres. Now that I am nearly 79 years of age I have sold out my fruit except for home use but I find that I cannot quit keeping bees, for, besides being profitable, the work with them is a real pleasure.

The many letters I received from small beekeepers and even from those having hundreds of colonies, showed that a lot of beekeepers are vitally interested in planting for the bees, especially in localities like this where there is but a short flow from white or sweet clover and very little basswood or smartweed. A neighbor beekeeper, many years ago, planted just a little golden honey plant along a small river near his home. My bees now get nearly half of their surplus from the golden honey plant that had scattered its seed all along down the river during periods of high water. Long after the clover had ceased blooming, my bees worked early and late on this golden honey plant. At first I thought the honey was from goldenrod or Spanish needle but few bees could be found on either one. We finally found that the bees were coming from big clumps of this golden honey plant in the pastures and along the rows of fences. The honey they got was thick and of a light golden color. Some of my customers prefer the flavor to clover. This plant now grows for miles down the river originating at the home of this old beekeeper now long since dead. I gathered quite a lot of the seed and will see that it is planted up the river nearer my bees. I already have about 200 plants of this golden honey plant that I planted before. I have about 300 plants of anise hyssop. I have over 200 plants of the Simpson honey plant and over 2000 plants of garden sage besides patches of horehound, catnip, and motherwort and also sweet bassia, which is a fine annual. Bees were busy on it all day long for a couple of months.

In the line of trees, I have twelve vitex trees received from a friend of mine, a beekeeper of Joplin, Missouri, Mr. M. F. Bond. These were two to three foot trees when I set them out last spring. They began blossoming about August 1st, reaching a height of five to seven feet, and they were humming with bees from August 1st until frost.

Of the plants, the Simpson honey plant or figwort is by far the best of all. It blossoms from July until frost in this locality, and was humming with bees from early morning until late at night. I would place the Simpson honey plant at the head of the list, anise hyssop second, and the golden honey plant third. All of these are perennials but I think it would pay to plant them for honey alone, first in a garden for the purpose of raising seed to throw in waste places. On waste land, the golden

honey plant would rank first, epecially bottom land along creeks and even where cattle are pastured, as the seed comes up quickly and it holds its own with other grass or weeds.

The horehound, catnip, and motherwort are fine, coming from the root each year and remaining in blossom from one and a half to two months. The horehound is 30 days earlier than the catnip or motherwort, and all of them are easy to grow.

On page 322 of Gleanings for 1877, J. A. Simpson of Alexis, Illinois, who first brought this plant to the attention of the beekeeping world, praised it very highly and Mr. A. I. Root also endorsed it and said the plant grew to a great height and continued in blossom for four full months.

Then in the American Bee Journal, page 567 for 1882, Dr. G. L. Tinker of New Philadelphia, Ohio, who first called attention to the wonderful golden honey plant, said his bees were storing honey from it as rapidly as from white clover. He announced that it would grow in thickets, among trees, in the shade or in almost any location.

The Simpson honey plant, the anise hyssop, and the golden honey plant all bear a lot of seed, and from a quarter acre garden one could easily raise enough seed to sow in all the waste places within two or three miles. In many localities this would run up to 1000 acres. Since this would result in an almost sure honey flow for four to five months, why should anyone be satisfied with a few weeks of honey from clover and smartweed? At my age I may not reap so much from my planting but others will and I am having a lot of fun out of it besides. Right now I am planning to try a patch of black, white, and purple sage within reach of my bees. There are not less than 1000 acres usually classed as waste land—creek bottoms, bluffs, and forest land—ideal for the California wild sage. We have a lot of moisture in the winter and spring and it is very dry in the late summer.

Verona, Mo.

Root Company Entertains Chinese Entomologist

Mr. Li, Chen-Kang

For several weeks Gleanings has enjoyed a visit from Mr. Li, Chen-Kang, Economic Entomologist at Nanking University, Nanking, China. Mr. Li is spending a year in this country by arrangement with the Extension Service of U. S. D. A., making a general study of conditions here, paying special attention to the pollination of fruit, vegetables, and legumes by the bees. He comes to Medina from Clemson College, South Carolina, where he spent a month with E. S. Prevost, Extension Bee Specialist for that State. Mr. Li completes his year in September when he will return to his teaching post in China. Believing Mr. Li to be truly representative of the splendid native teachers in New China, Gleanings hails China's new day as a burst of sunshine after the storm. All who have been privileged to know him will long remember his eagerness to give information as well as to receive it.

From the Field of Experience

Preparing Bees For Winter

By Charles Ater

Preparation for winter and next year's crop should start immediately after the main honey flow. Here in central Illinois after the sweet clover flow (if there's any clover) our bees pass through a period of several days in which Vervaine and some of the mints are the only source of nectar, just enough for subsistence and prevention of excessive robbing. During this period is probably the best time to remove the main part of the honey crop yet on the hives and to replace old queens.

During this interlude queens are easily introduced with a high percentage of takes. It's a good idea to dab her thorax with a bright Duco lacquer, a different color each year and the same color all year. Ages can be easily and definitely determined and the queen is easy to find.

Some may prefer 100% requeening. I don't. Too often, a vigorous queen is replaced with one that is superseded or swarms next spring. In '44 my highest producing colony (236 pounds extracted) was headed by a four year old queen.

Having colonies headed by industrious queens at the start of the fall honey flow is the primary and most important factor of assuring good wintering and a guarantee of next year's crop, barring unforseen hazards.

A colony in autumn with a large cluster of young bees, a queen full of vinegar, a top entrance, adequate honey reserve, a natural windbreak, and as little as a barbed wire fence for wind protection, in this locality, is extremely hard to winter kill.

Virginia, Ill.

Propolis Pete Replies to Mrs. Palmatier's Letter in July Gleanings, page 397.

Dear Mrs. Palmatier:

Bless your little heart, I wouldn't laugh at you, up my sleeve or any other way. But you are wrong when you picture me sitting in a comfortable cushioned editorial chair. I'm not on the staff of Gleanings. I'm just a poor cluck of an amateur with sort of a genius for getting myself in trouble. As a matter of fact, when I read your letter I was in a very sooty railroad coach passing through Yaphank.

I should have mentioned the possibilities of what happened to you, but Gleanings isn't big enough to put in EVERYTHING. The reason I should have mentioned it is because exactly the same thing happened to me during my second year of beekeeping.

I do notice one thing in your letter. You're hooked as a beekeeper. Not one word about quitting.

Now here is what I started out to say. The year after I went through the ordeal that got you into so much hot water I had two colonies and ordered three packages to make it five. One of them had built a little piece of comb in the package, but I paid no attention to it, thinking that the bees would move over onto the foundation just as they had the year before. But they didn't.

They promptly moved back into the ittsy bittsy piece of comb that they had built and filled the package so full that — you think you had a mess to clean up. You should have seen mine.

So, for the benefit of future packages that you may start, try to have at least one frame of drawn comb. Five drawn combs are better, but at least one placed where the queen will find it when she is released, and before she gets to the package, generally does the trick. Break off any comb they might have started in the package to be doubly sure.

Another way that is rather fearsome for the beginner is to tear off the screening on one side of the package and dump the whole kit and kaboodle over the frames. Then you don't have to put the package in the hive at all.

Also, it is quite possible that your bees swarmed because they had nothing but foundation to start housekeeping. That hasn't happened to me, but give me time.

Yours very truly, Propolis Pete.

The Smuggling Bees

By Rev. Hermes Fuchs

The London "Times" gives a rather bizarre example which will particularly interest naturalists and those who are smugglers in sentiment if not in fact. The story concerns bees who became smugglers.

Last year, Italy stopped all exportation of honey. A Swiss gentleman, whose business was seriously hurt by the new ruling, looked about for a means of getting around the difficulty. He finally hit upon the following trick: His regular dealer was told to bring his pots of honey and place them at the edge of the forest on the Italian side of the Italo-Swiss frontier.

In the meantime, the Swiss had transported his numerous hives on the Swiss side of the line about a half-mile from the honey pots. In less than an hour, the bees had found the honey and in three days had transported the entire amount of 200 pounds to the hives of the Swiss businessman. The winged smugglers succeeded in passing the lines without being searched by the custom - house officers; these no doubt thought that the bees would consider such a move as a "stinging" insult. Can you beat it?

Bergersville, Que., Canada.

Effect of Sunlight on Colony Temperatures

By. C. A. Jamieson

Assistant in Research at Central Experiment Farm, Ottawa, Canada

After reading the editorial note by E. R. Root which prefaced the article entitled "At What Temperature Will Bees Fly," by C. R. Walker (November issue), I thought you might be interested in the following data which illustrates very clearly the effect of sunlight on the interior of a hive.

Temperatures were taken with the aid of resistance thermometer bulbs situated on the four walls and top in the upper brood chambers of three hives provided with different winter protection. One hive was unprotected on the sides but had a deep super of straw and an ordinary hive cover for top packing. The second hive was packed with three inches of straw on the sides, eight inches on the top and wrapped with tar paper. The third hive had six inches of straw on the sides, 16 inches on top and was also wrapped with tar paper. All hives contained combs, but no bees occupied them. In their place a small 7-Watt Resistor heater (connected in series) was used on each hive. All hives had double brood chambers, bottom entrances, and were faced in a southerly direction.

The increase in temperature of the interior of the three hives, along with the increase in outside shade temperature is shown below:

Hive	Temperature Increase With Bright Sunlight (Dec. 12, 1945)			
	Average of South and West Bulbs	Average of North and East Bulbs	Top	Outside Shade Temp.
Heavy Packing	8.5°F.	8.0°F.	9.0°F.	
Medium Packing	18.5°F.	18.5°F.	16.0°F.	9.0°F.
Top Packing Only	46.0°F.	24.0°F.	27.0°F.	

The south and west sides of the hive, being exposed to the sun, were affected most in the hive with no side packing. It was thought a similar difference would occur in the packed hives but it was not observed. It will be readily seen that the packing material largely prevented the heat of the sun from penetrating to the interior of the hive.

Whether the warming up of the air in the interior of a hive during the day is definitely beneficial we are not prepared to say at this time.

Subsequent tests will be conducted to see what effect on temperature occurs when using upper, lower, and the combination entrances.

Beekeepers Meet at Detroit Lakes

By J. A. Munro

Practical demonstrations on beekeeping management and discussions on bee pasture, honey prices, and related problems held the spotlight in the two-day meeting of the Minnesota and North Dakota Beekeepers' Associations held at Detroit Lakes and at nearby Callaway, Minnesota, July 25 and 26.

The beekeeping demonstrations were led by Dr. C. L. Farrar of the U. S. D. A. Bee Culture Laboratory, Madison, Wisconsin, and Dr. Mykola Haydak, University Farm, St. Paul, Minnesota. Dr. Farrar outlined the two-queen system of beekeeping, pointing out that while the plan calls for more detail in management than the single-queen system, it practically doubles the hive population and greatly increases honey production per stand. Dr. Haydak outlined the benefits in increased honey production by the feeding of pollen substitutes consisting of soybean flour mixed with brewer's yeast or natural pollen to offset the usual dearth of natural sources during the critical broodrearing period.

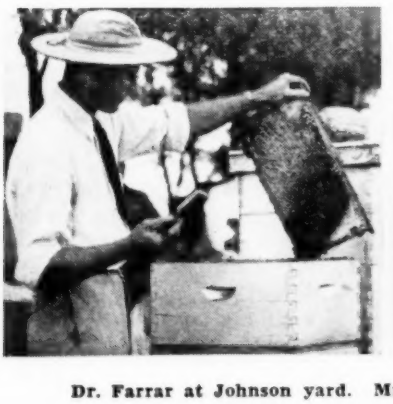
Tracing the development of the North Dakota Beekeepers' Association since its beginning 25 years ago, Dr.J. A. Munro of the North Dakota Agricultural College paid tribute to the men who had aided in its program throughout the years. He pointed out that the Association has been constantly interested in the problems in beekeeping and has been fortunate in having the cooperation of the Agricultural Colleges and federal research agencies in aiding their solution.

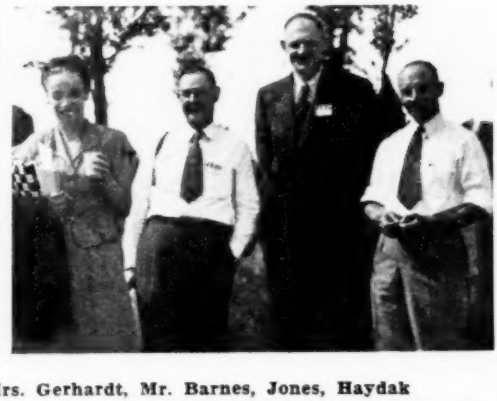
Commissioners of Agriculture, Math Dahl, Bismarck, North Dakota, and R. A. Trovatten, St. Paul, Minnesota, addressed the beekeepers on regulatory problems dealing with the welfare of beekeeping. An unscheduled treat was an address by Minnesota Governor Edward J. Thye to the delegates while they were having their picnic luncheon in the park. T. L. Aamodt, State Entomologist of Minnesota, told of the effective cooperation he has in his work from the research, extension, and teaching divisions of the University and the support received from beekeepers generally; and he pointed out how essential such cooperation is in the functioning of any program.

A highlight of the meeting was a talk by Mrs. Gerhardt of the American Honey Institute, Madison, Wisconsin, on the work being done by the Institute and the cooperation and support being received from the beekeeping industry. Following one of her talks, the women formed an auxiliary to the Minnesota and North Dakota Beekeepers' Associations; they elected Mrs. Joe Finstad, Campbell, Minnesota, President; Mrs. Medford Olson, Red Lake Falls, Minnesota, Vice-president; and Mrs. J. A. Munro, Fargo, North Dakota, Secretary-treasurer.

The National Federation of Beekeepers was well represented by Glenn O. Jones, Secretary, Atlantic, Iowa, and Ralph Barnes, Oakland, Nebraska. These men told of the work being done by the Federation in arousing the interest of agrono-

(Continued on page 501)





Dr. Farrar at Johnson yard. Mrs. Gerhardt, Mr. Barnes, Jones, Haydak

CAROLINA — A Wonderful Tropical Tree

By Gonzalo S. Ordetx

In the tropical countries are many plants that for their beautiful flowers are alluring to the majority of transients. Few are the blossoms that cause such a great impression as those of the **Carolina.**

This is a medium size tree belonging to the **Bombacacea** family. In botany it is known as **"Pachira insignis",** savigny.* It propagates easily by cuttings, for that matter is utilized frequently for living fence post. The bark is bulky and green. The wood is soft and useless, apparently fit for the manufacture of paper, according to Pittier. The flowers are approximately seven inches long with numerous stamens, giving the appearance of a duster, and are bright pink or crimson. The large leaves are digitate, with five or seven leaflets. The fruit is russet. In some localities the seeds are roasted and eaten like a chestnut. For this reason the plant in Venezuela is called **Castano** (meaning of the English word chestnut).

As a honey plant, in Cuba and Venezuela this specie is of great value to the beekeepers because the quantity of nectar it yields. In the zone of Niquero (Cuba) was reported a good crop from this source.

The tree looses its leaves in winter and then is covered with flowers that open suddenly in the afternoon. The bees rush to blossoms as if to help them when they proximate to open, which occurs readily. The bees work eagerly on the stamens trying to reach the nectar that flows freely till dark, and then they return at dawn, working steadily on the flowers till they drop. In places where there are children there is great competition between the bees and the youngsters. The boys enjoy throwing the blossoms from the tree to play with them, usually they spin the flower on **"taburetes"** (leather chairs used in West Indies) to pretend dancers dressed of crimson.

Blossom and buds of Carolina (Pachira insignis Savigny)

This is a native plant of Trinidad, Lesser West Indies, and in the forest of **"tierra caliente"** (lowlands) of Venezuela. Was introduced in Cuba successfully because the cuttings take root easily, and it has multiplied extensively over all the island. †

The honey is dark amber in color and thick. Few persons say it is of poor flavor, but ideal for making of sweet cakes. In that account it was exported before the war to Holland and Germany. As table honey it is well liked by those accustomed to dark honeys. The only objection is that it blooms in February and March the same time as the **avocado,** that yields a dark honey of strong flavor. When avocado and carolina honeys are mixed the result is a low grade honey.

Havana, Cuba.

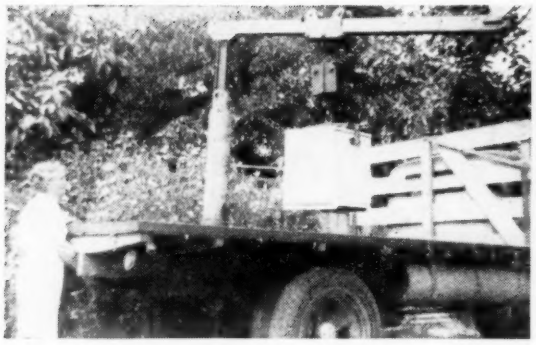
* According to Bailey, the genus Pachira contain a group of tropical American trees of variable size, all with striking showy flowers and exceptionally large fruits. As a rule the majority are a good source of honey. Species well known are "carolina" (Pachira insignis, Savigny); "zapote de agua" (P. aquatica, Aubl.), common in Mexico, Central America and northern South America. The "zapoton" or "pumpumjuche" (P. macrocarpa, Schlet.), grow in Central America from the southern Mexico to Costa Rica.

† Has been introduced in southern Florida and other countries of America.

"I have never seen a live bee yet that wasn't doing something."—M. Teasley.

A Power Hoist

By B. M. Crawford



It is easy to swing a heavy hive onto and off a truck

The pictures above illustrate the action of a power hoist connected to power take-off from a truck engine.

The device consists of a mast which is extendable for any height load desired up to eight feet, on which there is a boom 8 feet in length secured to the mast and a trolley on the boom which moves along the track of the boom for placing the load in any desired spot or for picking it up.

There are two cables wound on and off cable drums by means of friction drive, and they are independently controlled, one for actuating the trolley on the boom and the other for raising and lowering the load hook.

The boom swings all the way around in either direction and is also power driven. The wife pays out on the trolley line by unwinding the cable drum until the trolley is at the outward end of the boom; then by paying out the load hook line the load hook with the bee hive clamp is lowered and straddles the hive. Then she takes up on the line raising the load and then by swinging the boom and placing the trolley in position the load may be lowered or picked up at any desired place on the floor of the truck and thus I have solved the problem of having my wife do the heavy lifting.

The load is held securely at all times as there is an automatic means whereby the winch is held against further movement when the operating lever is released.

The hive clamp releases its grip when the hive comes to rest on the truck so that by raising the hook the clamp is inoperative and leaves the hive where it rests.

By repeating the above operation the cycle is complete so it is seen that we not only raise the load up and around and let it down, but we can also place the load in position or pick it up at any desired point within the radius of the swing of the boom.

My wife can not understand why I built the hoist except that I had a grudge against her as she misses out on more bridge games this way, she says.

Santa Ana, Calif.

To Get Bees Off Combs; Quilts vs. Top Entrances

By L. J. Hedderick

The next time bees pile up on the walls of a super when you are shaking them off the combs, try using the edge of your hive tool (if the edge is straight and knifelike) to shave them down. They will stay put much better than with smoke.

If you don't care for the top entrance idea (I'm not yet persuaded!), try using cloth over the frames rather than wooden covers. This, with porous packing, will permit the escape of moisture, and will facilitate early examination for feed.

Ayr, Ontario.

Second Glances

By C. M. Isaacson

Large scale queen rearing is perhaps one of the biggest factors making modern beekeeping possible. Extensive package shipping would not be possible without it, and, in addition, recently developed beekeeping practices demand great numbers of queens for the making up of nucs replacing winter loss and for increase. Then, too, few commercial beekeepers have time during the summer months to produce their own queens for requeening, and are dependent on specialized producers for these as well. Mr. Bessonet makes plain the care and labor necessary to produce **good** queens (page 425). Even more so than in honey production, a well planned system is essential. It is interesting to note his mention of the use of pollen substitutes as an aid in getting cells developed right under adverse conditions. And the maintenance of a very strong cell building colony will mean better queens. But, as we all are, queen producers, after doing everything possible, are finally dependent on the fortunes of the weather.

Many colonies—many beekeepers. That condition which Roger Morse found in Switzerland (page 428) is a healthy one. When a country is abundant in such apiarists, filled with eagerness and really **enjoying** their bees, one need not fear for the future of the avocation in such a place.

Keep strong colonies at all times! That means not allowing them to weaken themselves by swarming as well as other ways (page 430). But it is not a bad record to winter over successfully a swarm hived so late in September. I doubt if it would have been possible outdoors—cellar wintering—in a properly constructed cellar—**can** save bees that would otherwise perish. But most of us follow the line of least resistance—and it is true that with extensive apiaries cellar wintering does present real difficulties.

The sulfathiazole bandwagon seems to be gaining momentum rapidly (page 432). I don't mean by this to speak disparagingly—just to comment on how prone we all are to grasp at something new and promising. And yet, those who hold back have their use also—try sulfathiazole if necessary, but try it cautiously, watching treated colonies carefully for a considerable period. It may well develop that its use may actually cause a **more** virulent strain of AFB bacteria to become predominant—as has been the case with various human diseases treated continuously with sulfa type drugs—and penicillin.

A world-wide name. (page 433) If ever one man deserved that classification it is Dr. E. F. Phillips. Oh yes, several other men in beekeeping could perhaps share that title, but countries everywhere know Dr. Phillips, or of him. But that last paragraph of Mr. Dyce's report tells a story which is very natural—and one which clashes with the article's title. An active man never really retires—he just changes his work sometimes!

Having queens clipped does provide a way of determining when supersedure has taken place (page 435), and it also may keep a big force of bees from absconding before the beekeeper arrives to do something about the swarming condition. And Propolis Pete gives several points of good advice—have as good an extracting outfit as you can afford (but not more so), keep your honey clean—and—don't forget the bees that gathered it. Leave them enough, however much that may be.

Package queen supersedure, of course, can follow if, as Dr. Abushady says, the queen has been injured, or the bees disturbed unwisely (this depends more on conditions than actual time elapsed), but these things alone do not explain cases where everything would appear to be favorable. Many are coming to believe that Nosema has been a factor in some cases, possibly a good many (page 437).

Honey prices are very much of a question mark at the time of writing this. With the re-enactment of O. P. A., conditions are quite unsettled and most seem to be marking time awaiting a decision. It is to be hoped that a fair price will be set—but not one so high that the widespread use of honey will be cut markedly. We need that consumer acceptance in years to come (page 444).

Middle River, Minnesota.

Talks to Beekeepers

By M. J. Deyell

It seems good to be back at my desk. I wish to express my sincere appreciation for the many letters from beekeepers in this and other countries during my recent bereavement and illness. Words cannot express my thanks for your kindly interest. Also, I wish to thank other members of the Gleanings staff for carrying on during my absence.

Having been away from my desk for over 2½ months, spending part of that time in hospitals, and not having looked into a bee book, bee journal, or bee hive during that interval, it is natural to feel that I am behind the times on recent developments in our industry. There is so much happening at the present time in different sectors of our industry that it is somewhat difficult to keep abreast of the times.

A Never-to-be-forgotten Thrill

A few weeks ago, after returning to work, I visited my own apiary a few miles out in the country. I'll never forget my feeling as I approached the yard. It was an agreeable surprise to find the hive covers painted, the yard mowed, and all of the hives neatly arranged. One of my sons-in-law, the beekeeper of the family, had taken pity on the apiary during my absence. During the long spell of cold weather that prevailed during May and early June, some feeding had to be done which saved a number of colonies which might otherwise have died. It is good to have such a son-in-law.

The weather during the day I visited the yard was perfect. Before examining the colonies, I took a little stroll along the railroad where I used to shoot woodchucks a few years ago. Memories of those good old days flooded my mind.

When I finally put on my veil and lighted the smoker, I never had a greater thrill in opening up a bee hive. The bees were quiet that day, even though they were not gathering much nectar. Conditions within the hive were not what I had hoped they might be. The bees seemed somewhat listless and were not filled with nectar as they are during a good honey flow. There was comparatively little fresh pollen stored in the cells adjacent to the brood. A considerable amount of pollen was in the cells, some of it covered over with honey. By the way, will someone tell me just what that substance is that the bees use to cover the pollen in cells? The cells are usually about half filled with pollen and then covered with this glazy substance. I presume it is propolis, although I have never had it analyzed. This substance is used to cover the pollen over and seal it, practically hermetically, in order that it may remain fresh until used by the bees at some future time.

Has anyone ever seen pollen in drone cells? I haven't,

On that first day's visit to the yard I found a considerable amount of sealed but comparatively little unsealed brood and eggs, which would seem to indicate that nectar had not been very plentiful just prior to that time. A week later I made another visit to the apiary and found a considerable amount of freshly laid eggs and unsealed larvae.

Since my first visit I have almost completed the checking of 50 hives of bees and strange as it may seem, I found comparatively few old queens. At least most of the queens appear to be doing good work. I did not see all of them but judged their quality by the work they were doing. I found scattered brood in two or three hives and on finding the queens, found them to be rather shiny in appearance and somewhat wobbly on the combs. These queens were reaching the end of their usefulness—in fact, some had practically arrived. They will be replaced this fall. Just why these queens were not superseded, while some other queens in the yard apparently were, I do not know. Perhaps someone can tell me.

By the way, I asked two experienced beekeepers who have contributed to the pages of Gleanings during the years, to write an article on why some queens are superseded and others are not, but are allowed to remain in colonies until they die. Neither of these beekeepers would undertake the writing of such an an article.

Most of you experienced beekeepers have seen queens that are toler-

ated in colonies until they are too old to lay eggs. They are not superseded. The queens finally die and no queen cells are started and consequently such colonies become hopelessly queenless. Possibly some of you readers have the answer to this question.

A Bad Case of Laying Workers

About three weeks ago, I went with the boys to visit our western Ohio bees. I saw something that day that I have seldom seen. It is a little difficult to describe:

A young queen had been introduced to a strong colony about two weeks prior to the date on which we examined the colony. The queen was in the lower brood chamber underneath the queen excluder. She looked normal in every way and was apparently laying some eggs, although we did not see her in the act of laying. However, we found large areas of drone brood in worker cells, the brood protruding from the ends of the cells, as is the case when either a drone laying queen or a laying worker lays eggs in worker cells. Some cells had more than one egg. At first we thought the brood had been produced by the queen we saw. However, when we examined the combs in the super above the queen excluder, we found conditions similar to those existing in the lower chamber. This seemed to indicate that laying workers were present because the queen in the hive could not get into the upper chamber to lay because of the queen excluder. Much of the brood had a sickly, watery appearance. We decided to give the queen a chance to lay worker eggs if she would, so we found some fairly good combs and put the queen, with these combs, in the lower chamber underneath a queen excluder, then shook all of the bees from the laying worker brood beneath a tree some distance from the hive. Before we left the yard that evening practically all of the bees had drifted back to their location. I asked one of the boys a few days ago what became of that colony. He said that when they examined it recently they found that the queen had disappeared but that there was very little, if any, laying worker brood. It is possible that the laying workers had been lost and failed to return to the hive when the bees were shaken underneath the tree. A new queen was introduced to the colony and it is hoped that she may be accepted.

Some beginners, in fact a few experienced beekeepers, have difficulty in determining whether or not a colony that is abnormal has laying workers, or a drone laying queen.

Drone layers are rather common and I suspect that a queen becomes a drone layer because she is beginning to lose her fertility. Perhaps she was not properly inseminated in the first place. This, of course, brings up the question or problem that some of our queen breeders would like to have solved. Sometimes during the early spring there may be drones in the queen rearing yard, but drones that are not old enough to perform their duties in reproduction properly. I have heard some say that a drone should be at least 40 days from the egg in order to be a full fledged drone, capable of breeding normally. It takes about 24 days from the time a drone egg is laid until the drone emerges from the cell. This would mean that a drone should be at least 16 days old before he is capable of mating successfully with a queen.

Then too, during the early spring weather conditions may not be right for the normal mating of queens and this may result in queens that are partially inseminated. If some queens mate more than once, and we are told by some of the experts that they actually do, partial insemination may be the reason for a second or even a third mating.

Getting Early Queens

Last winter when I attended the Southern Conference in Valdosta, Georgia, I had a long talk with one of the southern queen breeders who has had a wide experience in different states. We talked about thermostatically controlled queen mating hives. We had it all worked out to a fine point. We concluded that such hives were possible to maintain, even though they might be somewhat costly, and that queen cells could be kept warm instead of being allowed to perish during an unusually cold spell, as sometimes occurs in the South during the month of April. We had a goodly amount of virgin queens produced and all ready to mate but we came up against the problem of bad weather for mating, which as yet cannot be controlled.

(Continued on page 508)

American Honey Institute News Notes

Harriett M. Grace, Director

Every home that receives a newspaper will find some publicity on honey. Some newspapers issue the **Institute's** releases in successive weeks, even on consecutive days.

* * * * *

There can be a great future ahead for the honey industry by:

(1) efficient production of quality honey.
(2) wide distribution the year around.
(3) fair prices.
(4) good packaging.
(5) sharing the profits with the Institute's publicity and research program.

Budget-wise beekeepers earmark part of their funds for publicity on honey because they know it is a smart investment in protection.

(6) improving and enlarging the apiary.

* * * * *

A food industry is experimenting with using honey in preparing pickles for market.

* * * * *

The Institute is receiving many orders for literature.

* * * * *

Honey publicity works like a stone tossed into a pool; it sends out ripple after ripple until its effect has extended across the entire surface of the pool. Homemakers have told their neighbors and friends about "Old Favorite Honey Recipes", and because of this hundreds of requests from homemakers for this unique and practical book come in each week.

* * * * *

A chain of ice cream bars features a Bee Hive Sundae for 30 cents. Honey and chopped nuts on ice cream make this dish delicious.

* * * * *

On signs in busses one dairy is advertising Honey Ice Cream.

* * * * *

One of the food concerns that puts out a quick-mix package has two honey recipes included in its wide advertising.

The following Ready-to-Mix Lemonade is receiving wide publicity:

2 cups lemon juice
1 cup honey
4 teaspoons grated lemon peel

Combine and stir well. Store in refrigerator. For one serving pour ¼ cup lemon syrup in a glass and fill with ice water or ice and water.

* * * * *

It pays dividends to sell:

—good goods
—good service
—good will
—good distribution

A neatly kept back lot apiary owned by Harris A. Harvey of Williamsville, N. Y. The hives are not too close together. The fence and trees afford some protection against the prevailing winter winds. The slatted fence breaks the force of the wind.

Annotations

By Dr. A. Z. Abushady, Professor of Bacteriology, Farouk University,
General Secretary, "The Bee Kingdom League", Egypt

American Bees—Like all American produce which is never permitted to continue unless it can withstand competition, American bees are the outcome of sound trial and efficiency. I have had my experience with them as far back as 1919 in England; but after the lapse of all these years and after my experience with many varieties (including Cyprians, Tunisians, and Egyptians), I consider American bees amongst the finest utility bees available. This is probably due to the admixture of grey (Caucasian or Carniolan) and yellow (Italian) bloods, to the elimination of vicious strains which would mean a waste of the beekeeper's time and energy, and to the championship of disease resisting and productive strains only. In this connection, it may be of interest to American breeders of Carniolan bees to know that they have an open market in the Near East, and particularly in Egypt, for pure fertile Carniolan queens sent by air mail (a three-day journey or less). The Carniolan blood is utilized in Egypt for creating the Carnio-Egyptian bee (first cross) which is an excellent honey gatherer, comparable in many ways to the Carnio-Italian bee in Britain and America. Though not so gentle, it has an additional advantage over the latter in not gathering propolis, hence its value in comb honey production and in easy manipulations.

Beekeeping in Palestine—Apropos of Dr. B. Gorstein's visit (page 431), I have nothing but praise for the industrious ways of the colonists there. They have been in close cooperation with the B. K. L. in Egypt and have followed its example by adopting the Langstroth as the standard hive for Palestine. They produce excellent citrus honey, and they spare no trouble or expense in establishing and running model apiaries on American lines.

Dr. Phillins' Retirement — The writings of Dr. Phillips are regarded as classic amongst the educated beekeepers in Egypt and the Near East, to say nothing of other countries. I think he is the finest professor of apiculture which the science and industry has ever known in modern times, as all his teachings are based on rational principles. He was elected President of the "Bee Kingdom League" in 1935. Amongst the other notable American pioneers who held the same honorary post were the late Mr. C. P. Dadant (1930) and Mr. Ernest Root (1940).

Sulfathiazole Treatment — As we are dealing with a constantly changing population in the hive, some of which act as carriers (the adult bees) and others are prone to the disease (the larvae) the best preventative treatment must intelligently give full consideration to the time of year. Possibly, routine autumn and spring administration of the drug in any convenient way would prove helpful and even efficient. As regards active treatment, there is no choice of time. And considering the large consumption of food in brood rearing, there is little chance of the drug remaining to contaminate honey surplus, particularly if the water spray method is used. After all, if the drug is really efficient, it will not be difficult to evolve a suitable method or methods, as practiced with the Frow treatment for Acarine disease in Britain.

Jamaica 5, N. Y.

Notice to all migratory beekeepers who plan to go to Texas: The Texas Apiary Inspection Service announces that all migratory beekeepers who expect to ship or move bees on combs into Texas must make application to the State Entomologist, College Station, Texas, for permit to enter the State. The application should be accompanied by (1) certificate of inspection (1946) covering all colonies being moved and showing the apiary where the shipment originated to be free of AFB and (2) as exact information as possible regarding the location of the property where the beekeeper expects to place his colonies. Since so many beekeepers have practiced moving to a limited area in Texas, precautionary measures have become necessary to protect beekeeping activities and to prevent the disease situation from getting out of control.

Editorials

Price of Honey With the extension for one year of the price control act, honey automatically again came under the prevailing ceiling prices as of June 30 of this year. While conflicting rumors seem to be rampant we are informed that either the Department of Agriculture or Office of Price Administration is able to recommend decontrol of agricultural products but to date neither division has done so in the case of honey despite many requests for this action from members of the honey industry. Another approach may be made through the OPA Honey Industry Advisory Committee. It is believed that the majority of this Committee favor decontrol of honey and that a meeting will be called at an early date. However, it seems doubtful if the recommendation of the Committee will be acted upon rapidly enough to overcome the present confused state of affairs in the honey market.

It is obvious that either the ceiling price will have to be raised several cents per pound or decontrolled to avoid complete disregard of the existing OPA regulation. Producers and packers alike see trouble in store for the industry at some future time should the temporary industrial user outbid the home consumer of honey and cause honey to lose its stable market. But it is doubtful if any further attempts at price control will minimize this danger. The industrial user's consumption of honey is still under control and while many small manufacturers may disregard the regulation the larger buyers will no doubt follow the order and this should hold down the inflationary pressure somewhat.

Should Sulfathiazole Feeding be Left to Scientists Only? A scientist in many instances cannot get the final answer in the laboratory, or, more properly speaking, from experiments made only by scientifically trained men. The mistakes and hazards introduced by the human element are then left out. Moreover, the final answer if left to the relatively slow scientific tests might be delayed years. Even then it could develop that the plan is safe in expert hands but unsafe in owner's hands.

Automobile manufacturers long ago found that the grilling tests of new cars on test grounds or even on open roads do not tell the whole story. More than one design meeting all manufacturers' tests has proved inadequate in the hands of the average owners. If the states could authorize sulfathiazole feeding on the part of beekeepers who will report and be subject to inspection, the final conclusive answer should be quickly secured.

From a circular letter issued by the Tampa Bay Beekeepers' Association, August 2, 1946, we quote:

The Association prepared a resolution which was presented at the annual meeting of the Florida State Ass'n. meeting with the Georgia Ass'n. at Valdosta, requesting the State Plant Board to conduct an experiment for the control of foulbrood with sulfathiazole. It was requested that this experiment be made in Hillsborough County with the cooperation of members of the Tampa Bay Beekeepers' Ass'n. It was desired that the result be considered official and that thereafter foulbrood be controlled by sulfathiazole rather than by burning. This resolution was taken to Valdosta, presented at the meeting, voted on and carried. The State Plant Board did not act favorably on the resolution at once. The committee met to see what action was to be taken, and on Friday night of this same week at the regular meeting of the Ass'n. we were honored by the presence of Mr. R. E. Foster, State Apiary Inspector, and two of his assistants. Mr. F. S. Houston, one of the members of the original committee, took over and laid the cards on the table, telling Mr. Foster what had been going on and the results obtained, and asked that Mr. Foster go with him to inspect several colonies which he had treated with this new drug. Several days later Mr. Foster inspected these colonies and pronounced them clean. From what Mr. Foster saw that day, and what he heard at the meeting, it was not hard to see that he believed that we had something that had some merit. In all fairness to Mr. Foster, we will say that he has to abide by the law as long as he is inspector. However, he went a long way with the Tampa Bay Beekeepers' Ass'n., for he started making experiments on 20 colonies at Gainesville, making the statement that if sulfathiazole would control and cure AFB he would see that the shovels and matches were taken away from his inspectors and sulfa drug and sugar given in its place.

In the meantime Mr. Houston asked for and received permission from Inspection Service and State Plant Board to conduct this same experiment on three colonies in his back yard at his home in Tampa, with this experiment to be recognized as official. Mr. R. E. Foster and his assistant, Mr. H. S. Foster, inspected these three colonies on Saturday following the Friday meeting and said they were really in bad shape. Mr. Houston told Mr. Foster that it would be a waste of time to experiment on colonies that showed only a small in-

fection, and that the only way to prove that AFB could be controlled in colonies that showed a small infection was to prove that it could be cured every time in its worst form. Mr. Foster agreed that this was true. In thirty days, Mr. H. S. Foster inspected these bees and could find no trace of the disease. His only worry seemed to be that it might come back later and was assured that if it did, it could be cleaned up again for less than five cents. In all the experiments conducted here over a period of 16 months, it has never re-occurred in a single case.

The reports concerning the use of the sulfa drug are almost uniformly favorable. As the matter now stands it may take years to come to a definite conclusion. The laws in some cases may be hindering the development of the new treatment because most of them are so worded that complete burning of bees, honey, and equipment (except hives) is mandatory. The bee inspector is left no choice but to order burning. This places the bee inspector and the bee journals in an embarrassing position because they can neither condone nor sanction the violation of law. The obvious remedy if the treatment is finally a success is to liberalize or amend the laws or to secure a ruling that will permit the employment of one of the sulfa drugs under supervision of the inspectors so that their value can be the sooner determined.

Man Honeybees' Worst Enemy

As brought out by Mr. Newell in his article, page 465, this issue, tampering too much with brood chambers late in the fall may result in colony losses. A colony, if permitted to stock the brood chamber with an adequate supply of honey and pollen will arrange the food in such a manner that it will be available during the late fall, winter, and early spring months.

Most beekeepers winter in double story brood chambers. This is an ideal arrangement, especially when the upper chamber, usually called the food chamber, is well filled, in addition to some honey in the lower chamber.

The winter cluster then occupies the middle combs of the lower chamber and will usually extend up into the combs of the food chamber. As the honey is consumed the cluster moves upward slowly during the winter. The bees can move laterally, if necessary, in the space between the two sets of frames.

When the beekeeper attempts to exchange combs late in the fall or early winter he may disarrange the brood chamber to such an extent that the colony is unable to readjust itself to changed conditions and may thus be lost.

Moral.—Provided a populous colony has an adequate supply of food and protection it should not be tampered with late in the season.

!Don't Rob Bees of Winter Stores

Because of the unusual demand for honey there will be the tendency or temptation this fall to sell the bees short on winter stores. Some beekeepers may say, "A bird in the hand is worth two in the bush," and may sell most of the honey that rightfully belongs to the bees and plan to stock hives with packages next spring. If such beekeepers can be absolutely sure of getting packages next spring and of securing sugar to feed them—all well and good. Some beekeepers in the North practice killing off bees in the fall, saving enough honey for spring feeding when starting from packages in the spring. Whether or not this is advisable has to be determined by beekeepers in different latitudes. But regardless of whether or not bees are killed in the fall, we recommend saving an ample amount of honey and pollen for bee food.

Increase in Bees Desirable

As will be recalled, early this year an increase of 8 % in the number of honeybees in this country was urged in order to have more bees for pollination purposes and also to increase honey and wax production.

Uufortunately, adverse weather conditions throughout most areas during the spring months retarded normal development of nuclei and packages. As a result, the increase in colonies of bees above that of a year ago is only 6%. However, the estimated number of colonies in U. S. A. at present, 5,787,000, is 33% more than that of six years ago. See the Honey Report, July, 1946 (page 00) for further particulars.

It is apparent that the majority of farmers, also fruit and vegetable growers, fail to realize as they should the value of honeybees in the pollination of many agricultural crops. The following, taken from Bulletin E584 entitled "The Dependendence of Agriculture on the Beekeeping In-

dustry —a Review", prepared by the Division of Bee Culture, and issued by the U. S. Dept. of Agriculture, Bureau of Entomology and Plant Quarantine, is worthy of consideration:

"In practically all agricultural regions honeybees are the most numerous flower-visiting insects and in many regions the depletion of wild pollinators is so acute that honeybees have to be brought in especially for pollination. The fertilization of plant flowers is so essential that beekeeping must be carried on to maintain a profitable agriculture, and it may be necessary to subsidize the keeping of bees, since there is no practical substitute in the transfer of pollen from flower to flower and from plant to plant".

Our country needs more honeybees, not only for pollinating fruits, vegetables, and clovers, but to gather the millions of pounds of nectar that is going to waste annually for the lack of bees to gather it.

Upper Entrances with Bottom Entrance Closed for Winter and Why

Mr. Ed Braun, agricultural scientist of the Dominion Experimental Farm at Brandon, Manitoba, who visited us this year, favors an upper entrance in the cover with the bottom entrance entirely closed for wintering. The top front rail of the inner cover is notched so that the bees can pass through the bee escape hole and to the outside under the telescope cover which is pushed forward to allow a bee space. This allows not only the bees to pass up and out, but also the excess moisture so destructive to good wintering.

Notwithstanding that the temperature goes down in Manitoba and Northwest Canada to 10, 20, 30, and even 50 degrees below zero, the bees, by this arrangement, are able to winter successfully whether packed or unpacked. Says Mr. Braun: "When it is very cold, the frost crystals will almost entirely close the opening in the super cover. As the weather warms up and the cluster begins to expand, these frost crystals will melt away a little at a time until a full opening is provided". In this way, in the very dry cold climate of the Canadian Northwest, the internal temperature of the colony is under automatic control to a large extent.

We have had reports from other beekeepers using upper with bottom entrances closed, and a number of them have told us how, with the bottom entrance closed, the upper entrance to the outer air is automatically enlarged or reduced to fit climatic temperature outside of the hive. The late John Conner of New Jersey, and L. L. Langstroth, 90 years ago, recommended closing the bottom entrance. Both Mr. Conner and Mr. Braun say that a bottom and upper entrance together cause a current to continually pass from the lower to the upper entrance. By closing the bottom entrance entirely, this too rapid change of temperature cannot occur.

We are presenting the above ideas suggesting that beekeepers try out the upper entrance with the closed bottom entrance on a small scale and then report results next spring.

Scarcity of Honey on Grocery Shelves

There never was a time in all beekeeping history when honey was so scarce on the grocery shelves as it is at the present time. Several factors have brought this about notwithstanding an enormous demand on the part of the housewife. We may ascribe this in part (1) to the scarcity of sugar brought about by war conditions; (2) black market activities with the expectation of making a scoop; and (3) last, but by no means least, the activities on the part of James I. Hambleton and his staff at the Bee Culture Laboratory in showing the value of bees in increasing the food crop many fold.

This is shown in Circular E-584 which Hambleton induced the Department of Agriculture to accept and spread abroad to the general public. In this Hambleton shows that the greatest contribution of honeybees to mankind is not honey and beeswax, important as they are, but the ability of bees to increase the seed and fruit crop many fold at a time when the world at large is either starving or short of food. If Hambleton and his staff did no more than to get this material before the public it would have been worth all the costs of the U. S. Bee Culture Laboratories stationed at various points of the country.

Homemaking Chatterbox

By Harriett M. Grace
Director
American Honey Institute

In September with the opening of the school year mothers turn their attention again toward making their children's lunches wholesome and appealing. Every lunch must contain a balanced meal with enough energy food to enable the child to meet the demands of his new work and play. Each must delight the child with a surprise. Honey plays an important part in helping lunches to meet these requirements, since honey is a safe, quick-energy food with a delightful flavor and a variety of uses.

The new honey crop will be ready in early fall to make those delicious sandwich spreads, cupcakes, and cookies which are staples among lunch box items. Creamed honey, which can be packed in individual one-ounce containers, serves as a satisfying surprise to be eaten as a confection or to be used as a spread for biscuits, muffins, and sandwiches. Honey may be used to sweeten the beverage and to make it more nourishing.

For the child's safety and convenience all fruit must be thoroughly washed, sandwiches and cake or cookies individually wrapped in waxed paper, and the beverage container securely capped. The items should be compactly and neatly arranged in a clean, dry lunch box that is regularly aired when not in use. A colorful napkin inside the cover will be both useful and attractive.

The following recipes using honey are helpful:

Sandwich Filling

Cream togther equal parts of honey and peanut butter until well blended. Add a few chopped raisins. Used as a spread for bread, this is different and rich in energy.

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Honey Sour Cream Spice Cup Cakes

One-half cup butter, 1 cup brown sugar, 1 cup honey, 3 egg yolks, 2 cups flour, ¼ teaspoon salt, 1 teaspoon ground cloves, 1 teaspoon allspice, 1 teaspoon cinnamon, 1 teaspoon soda, 1 cup thick sour cream, and 3 egg whites.

Cream butter. Add sugar and honey and cream well again. Add egg yolks one at a time and beat well. Sift dry ingredients and add alternately with the sour cream, beating after each addition. Fold in stiffly beaten whites of eggs. Bake in greased muffin tins in a moderate oven 30 minutes or in a greased cake pan for 40 minutes.

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Chocolate Fruit Cookies

One-half cup honey, ½ cup sugar, ½ cup melted butter, 2 eggs, 3 squares chocolate, melted, 1 teaspoon soda, ½ cup milk, 2 cups flour, 1 cup raisins and nuts (dates may be used), and 1 teaspoon vanilla.

Add honey and sugar to melted butter. Add the yolks of eggs and beat well. Add melted chocolate. Add soda to milk and then add milk and ½ the flour alternately. Mix well. Add raisins and nuts with remainder of flour. Add beaten whites of eggs and flavoring. Drop from teaspoon on buttered baking sheet. Bake 10 to 15 minutes at 350°.

* * * * *

If there are tiny youngsters in your home who are just learning to walk, slippery linoleum and hardwood floors make it doubly difficult for them to maneuver around. To help them maintain their equilibrium, put strips of adhesive tape across the soles and heels of their shoes.

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In washing glassware, it is very easy for the soapy pieces to slip through your fingers and shatter into fragments in the dishpan. When this happens don't fish around in the water with your hands to find the pieces. Pour the water into the sink and when you have disposed of the large pieces, pick up the tiny slivers with a wad of dampened cotton or cleansing tissue.

* * * * *

Many homemakers include curtain washing in their fall housecleaning or take down the curtains entirely during the summer months and then hang them again about this time of year. In any case it is quite a task rehanging them, but not if you use this little trick: Slip a nickel in the end of the flat metal extension rod and you will find the curtains slide onto the rod with the greatest of ease, no matter how sheer or delicate they may be.

Ohio Beekeepers' Summer Meeting

By M. J. Deyell

There is always fair weather when Ohio beekeepers get together. This was the case at Marion, Ohio, on August 7 and 8. In fact, the weather in some sections of Ohio, according to reports, was too fair for normal nectar secretion. The crop over the state is decidedly spotted, some sections having practically no surplus, others a fair crop, and a few rather restricted regions where a fairly good crop has been secured.

Just why such conditions prevail is somewhat of a mystery, although it seems apparent that a few regions had rains at just the right time, which helped to make soil conditions favorable for nectar secretion.

Different Opinions Expressed

Some beekeepers said that the lack of surplus honey was due to adverse weather conditions, some attributed it to the decreasing acreage of clovers, while others were of the opinion that soil conditions are not what they were some years ago, resulting in a reduction of the honey crop.

Lloyd Gardner, it would seem, hit the nail on the head when he said that during the past spring in his apiaries they had to rear two crops of bees to get one crop of honey and not a large crop at that.

Practically all speakers mentioned the decidedly adverse weather conditions prevailing last spring. Considerable discussion centered around this problem of having colonies reach the peak of strength just at the proper time—at the beginning of the major honey flow. It was decided that during some seasons it is almost impossible to solve this problem. However, when beekeepers apply intelligent management to their apiaries and meet the various emergencies that arise, to the best of their ability, this is about all that can be done. When a beekeeper does his part and weather conditions interfere with bees storing the maximum crop, the beekeeper can hardly be blamed.

Migratory Beekeeping

This topic came in for some discussion. Some beekeepers make a practice of moving their bees to fall locations and in some instances move from one location to another for the clover flow, especially when conditions warrant a move. It was brought out, however, that migratory beekeeping is rather expensive and unless the beekeeper can secure enough extra surplus honey to more than pay for the extra time and labor involved in this practice, moving the bees may not pay.

Chas. A. Reese, Ohio State Apiarist, expressed some opinions on the use of sulfa drugs. Mr. Reese thinks that experimenting should be done by scientific men and that it is a mistake to scatter combs from one hive to another while sulfa drug is being fed. Mr. Reese reported briefly on the effects of DDT on bees. A restricted acreage, with hives of bees in the middle of it, was recently subjected to the application of DDT. The bees were not affected but beetles were killed. DDT is soluble in oil but not in water. Bees do not like oil. It seems possible that in the future DDT may replace arsenicals, which in some instances are decidedly disasterous to bees. DDT may prove to be favorable to beekeeping.

Arthur Smith, Agricultural Agent for Marion County, brought out the fact that the corn and wheat acreage is higher in that county than it was ten or fifteen years ago and that the clover acreage has decreased. This, he said, is bad for beekeeping. Furthermore, the land in that county is losing its fertility, owing to the shrinking acreage of legumes. If and when agriculture gets back to growing clovers, beekeepers and farmers will prosper. There must be soil building. Mr. Smith pointed out that beekeepers should get behind the soil conservation program which is being inaugurated in various counties at the present time.

H. B. Ramsower, Director of Extension Service at Ohio State University, believes we are on the way to a new approach to a solution of our beekeeping problems. It takes time to get across the idea of the necessity of bees on farms. At present, farmers and fruit growers are becoming more bee-minded. Beekeepers over the nation should talk to their county agents regarding the importance of bees to agriculture.

Mr. Geo. Rea of Pennsylvania, who, by the way, was the first county extension man in the United States, for years bee inspector of Pennsylvania, also a teacher of bee-

keeping at Cornell University, gave a splendid talk on the program of the National Federation of State Beekeepers' Associations. Mr. Rea is now Assistant Secretary of the Federation, working with Glenn Jones of Atlantic, Iowa. Mr. Rea is donating his time and talent to this important work.

In spite of the splendid work being carried on by our National Federation, a large percentage of our beekeepers fail to support it. Mr. Rea referred to the splendid program of the Federation held recently at Atlantic, Iowa, which included outstanding speakers from the Soil Conservation, Agronomy, and Horticultural Departments in Iowa. These experts recognize the value of bees to agriculture. If the rank and file of beekeepers fail to show an interest and do not cooperate with these leaders, our industry may have a set-back. **Beekeepers should wake up!**

Mr. Rea pointed out the lack of interest in bees and the lack of appropriations for bee work in the colleges throughout the country. Furthermore, there is a lack of trained beekeeping specialists to fill positions open at the present time.

Our National Federation of State Beekeepers inaugurated a few years ago in Chicago is doing a splendid piece of work. The officers of the organization cannot do it all. They must have the cooperation of all the beekeepers throughout the country. The National Organization gets a bird'seye view of our industry in various sections of the country and ties those interests together in such a manner that beekeeping will progress. The federation is now in a position to look after the interests of beekeepers throughout the United States, as for example, the Committee on Beekeepers' Rights, the Committee on Honey Plants, the Committee on Quality Honey, the Veterans' Rehabilitation Committee, and others. Our industry cannot thrive without the cooperation of every beekeeeper in the United States with our National Organization. Mr. Rea urged the affiliation of State Beekeepers' Associations and beekeepers with our National Organization which needs our moral and financial support.

Walter Kelley, Editor of Beekeepers' Item at Paducah, Kentucky, thinks we need more efficient beekeeping equipment and urged beekeepers to experiment with various types of equipment, especially hive lifters. Manufacturers of beekeeping appliances should conduct experiments and maintain laboratories in connection with the development of up-to-date beekeeping equipment.

James Bain, veteran queen breeder of Marion gave an interesting and enlightening talk on his method of rearing genuinely good queens. Mr. Bain does not like the two-story system of cell building. He prefers to have a wider cell building hive, the combs all being on one plane. Mr. Bain said that a system of queen rearing that works in one locality may not work in another location, also that the nearer we can keep to nature in queen rearing practices the more likely we are to succeed.

The beekeeping banquet on the first evening was a huge success. It was presided over by Mr. Emerson Long, who seemed to have an interesting story or anecdote for every occasion.

Dean John S. Cunningham, College of Agriculture of Ohio State University, gave the main talk at the banquet. He emphasized the importance of honeybees in connection with growing legumes which are so essential for enriching the soil at the present time.

Much credit is due Dr. W. E. Dunham for the success of the meeting.

BEEKEEPERS MEET AT DETROIT LAKES

(Continued from page 488)

mists and others of the increasing need for bees in pollination and he urged further investigations on honey and pollen producing plants.

The associations expressed appreciation to the Civic and Commercial Club of Detroit Lakes and to Paul Johnson for providing facilities for the meeting, and to Messrs. C. D. Floyd and Arvid Benson, Secretaries of the MBA and NDBA respectively, for having arranged the meeting. A resolution commending the research being conducted at the Minnesota and North Dakota State Experiment Stations in the interests of the beekeeping industry was adopted.

Asked and Answered

How to Get Workers out of a Mailing Cage

Question.—Is there any easy way of removing the attendants from a queen mailing cage?—L. G. Lovell, Mich.

Answer.—Pry up one corner of the wirecloth, keeping the thumb over the opening and then with a few light puffs of smoke, drive out the workers but keep the queen in.

Bees Killing Clipped Queen

Question.—Is there any danger of bees killing a queen who has her wings clipped, after a number of attempts to swarm?—John Swain, N. Y.

Answer.—Yes, if the queen is not lost in an attempt to go with the swarm, the bees after several attempts will give up trying to swarm with the old queen and will wait until the young queen emerges, when a swarm will issue accompanied by a young queen, the old queen having disappeared.

Feeding Honey to Bees

Question.—I have a few jars of dark honey that I would like to feed back to my bees again. It was heated last fall to 160°and is now showing some crystals in some jars. How can I feed it and has the heating harmed it for feeding?—Albert Goltz, Ohio.

Answer.—The partially crystallized dark honey you have should be suitable for feeding to bees if you are sure that the honey did not come from a hive infected with AFB. Simply liquefy the honey by placing it in a boiler of warm water, then mix the honey with water in the proportion of 75 percent honey and 25 percent water. Heat the mixture and feed while warm. The reason honey is mixed with water to feed to bees is that this mixing dilutes the honey down to a consistency which bees can handle readily.

Location of Winter Cluster

Question.—If, during the winter, the colony has worked to the top of the upper food chamber hive in a two chamber hive, will it tend to remain there, crowd and swarm, or will the queen work down and fill the lower chamber with brood?-Leonard C. Rennie, Va.

Answer.—In a two or three story colony, during winter, it is desirable to have the brood nest between the upper and lower story. The tendency of the queen and the bees is to work upward as the season advances. They may, however, work downward. It is right here that the Demaree plan provides for putting the queen and the unsealed brood in the lower story and the sealed brood above the excluder. As the bees emerge from the cells it automatically provides storage room for the bees when the main flow comes.

Processing Honey for Glass Jars

Question.—Why do you recommend the bottling of honey while it is still hot from the double boiler? My observation is that unless it is allowed to stand a period after this stage to allow for skimming, an unsightly foam arises to hurt its appearance in the bottles.—Grant D. Morse, New York.

Answer.—It is a fact that honey, after it has been heated in a double boiler, should be allowed to settle for skimming. This means, of course, that the honey will cool off. If the honey is put into glass jars for grocers, it should be heated again to at least 160° Fahrenheit, run into glass jars while still hot, the caps of the jars put on while the honey is hot. This procedure will usually result in honey remaining liquid for a reasonable length of time.

Getting Rid of Ants

Question.—How can I get rid of ants?—J. L. Pickens, Oklahoma.

Answer. — Ants seldom trouble good colonies of bees in the North, but in the South where ants are more numerous, radical measures must sometimes be taken. In order to get rid of them, they must be cleaned out of the hives and the hives placed on stands or benches, the legs of which rest in cans filled with some liquid such as coal tar or crude petroleum that will prevent ants from crawling up into the hives. All the ant hills or nests in the apiary should also be destroyed. To do this, make several holes, an inch or so in diameter, about a foot deep through the nest. Then pour a tablespoonful of carbon bisulphide in each hole and stop up the holes with earth so that the fumes may permeate every part of the nests. Great care should be taken, since carbon bisulphide is very explosive when mixed with air. If the nests are not large, kerosene may be used instead of carbon bisulphide — but about three times as much is required.

A Bee-Eating Toad

Question.—Did you ever see a bee-eating toad? Well we had one two weeks ago. This toad sat on the alighting board

of the hive ready to lap up a bee when she came in. This toad was so full of bees that its sides just bulged. I put it off the alighting board and pushed it some distance from the hive but the next morning it was back on the alighting board and as full as could be of bees—Albert R. Gage, New York.

Answer.—Yes, it is a fact that some toads will sit near the entrances of hives and eat bees as they come from the hives. The toad's long tongue will shoot out and grab a bee. One would think the bee would sting the mouth of the toad, but apparently this does not happen. If there are many toads in your apiary, it would pay to get rid of them because they do get away with quite a number of bees.

Drone Traps Prevent Virgin Queens from Mating

Question.—We had eight hives of bees, starting in May for about two weeks. We hived 12 swarms which probably belonged to someone else. We put them in hives and fed them sugar syrup for a few weeks. They were large swarms. As there were a lot of drones we used drone traps. Now three of those swarms have dwindled to nothing, with just a few drones. Could you tell us what happened?—Martin Ams, Illinois.

Answer.—It seems possible that the bees may have destroyed the queens and that the young virgin queens which would normally emerge from cells after the old queens were killed could not get out to mate because of the drone traps. As you doubtless know, these drone traps will prevent a queen from passing through. Only the worker bees can get through the wires of a trap. Queen and drone traps should not be left on hives after the swarming season is over. They may interfere with the normal flight of bees, and furthermore, as just stated, they prevent virgin queens from going out to mate.

Do Bees Pollinate Tomatoes?

Question.—Are bees ever used to pollinate tomatoes? I have placed a great many hives in cucumber greenhouses in the last 30 years, but they are not used for tomatoes in this part of the country. —Philip S. Crichton, Mass.

Answer.—Bees are not an important factor in the pollination of tomatoes. The nectar in tomato blossoms is probably not sweet or as sweet as that in other plants which they visit frequently. In general, we would say that we have not seen any evidence to show that bees do not visit tomato blossoms. We must recognize, however, that they are very important in the pollination of cucumbers, especially in greenhouses at a time when no bees are flying out of doors. Recent evidence shows that bees will visit the blossoms of plants in proportion to the amount of nectar the blossoms contain—the sweeter the nectar, the more they will visit the plants.

Disinfecting a Honey Extractor

Question.— How can I be sure an extractor and settling tank is free of any possible foulbrood?—H. H. Baldwin, Conn.

Answer.—If a honey extractor or honey tank that you think may have come in contact with diseased honey is washed thoroughly in scalding hot water, or if live steam is applied to all parts of the metal, this should make the extractor and honey tank safe for future use. The important thing is to remove every trace of honey and wax from the metal. As you know, honey, if diseased, is a carrier of AFB organism.

Painting Rusty Spots on a Honey Extractor

Question.—Can I paint the inside of an extractor with a good grade of aluminum paint without bad results to the honey?—Stephen Jurash, No. Car.

Answer.—It will be perfectly in order for you to sandpaper the parts of your honey extractor that have become rusted, then apply a good grade of aluminum paint made for metal. We find it very satisfactory. Aluminum paint can also be used for painting the inside of honey tanks. The paint does not give the honey a bad flavor.

Unnecessary to Scrape Propolis from Brood Frame

Question.—I have 47 colonies, practically all in double hive bodies. My greatest problem at present is to clean the propolis from the end pieces of the brood frames to keep accurate spacing, and to clean the burr comb from the top bars. I seem to cause an undue commotion with my inexperienced methods. I try to scrape it off with the straight end of the hive tool but when the frame is heavily covered with bees it is hard to keep from jamming them. How important is it to keep the spaces between the top bars from becoming plugged?—Stacy S. Griffin, Maine.

Answer.—It is wholly unnecessary to scrape off propolis from your brood frames and hive parts when the bees are at work in the fields bringing in nectar and pollen. The average beekeeper allows the propolis to stay on the frames. It increases the space between the combs slightly but does no harm. The bees should not be unnecessarily disturbed.

Just News

Dr. A. Z. Abushady's permanent address is 183-02, 146 Terrace, New York Boulevard, Jamaica 5, N. Y.

* * * * *

The New Rochelle Beekeepers' Association will hold its regular meeting at 2:30 P. M. on Sunday, Sepember 15, 1946, at the home of Mr. Alfred F. Roth, 146 Oak Street, Portchester, N. Y. There will be a demonstration on how to remove the honey from the hives and supers, and bee experts will be on hand to answer questions and discuss problems. Anyone interested is cordially invited to attend. A social hour will follow the meeting—B. F. Miller, Publicity.

* * * * *

Bronx County Beekeepers' Association will hold its regular monthly meeting on Sept. 8, 1946, at 2:30 P. M. at the home of Mr. Frank Masek, 2219 De Reimer Ave., Bronx, which is located a few blocks away from the Pelham Bay subway station. Our membership in the Association is growing rapidly, so come to a meeting, all you strangers, and get acquainted with your fellow beekeepers and see why we are progressing so rapidly. Your bee questions are always in order. Mr. Masek's apiary will be opened for inspection, after which refreshments will be served.—Sam Roberts, Sec.

* * * * *

The Sioux Honey Association meeting held in the Mayfair Hotel, Sioux City, Iowa, July 20, was attended by approximately 300 honey producers. An audit of a CPA showed the organization to be in a healthy condition. Following an election of directors, pictures of the new streamlined plant at Lima, Ohio, were shown. Dr. J. E. Eckert of the University of California, and Jesse Marshall, attorney, were guest speakers.

* * * * *

"DDT FARM AND HOME USES" is the title of Circular 284, April 1946, put out by Clemson Agricultural College cooperating with U. S. Dept. of Agriculture Extension Service. This gives full directions for its use, how to prepare the different sprays or powders, how it will kill flies, how it may be used in farm buildings, upon poultry and cattle, and how it can be used in dwellings. Specific directions are given for applying in case of bed-bugs, fleas, ants, sandflies, moths, and the like. This is the most complete information yet to come out and of course it comes from an authoritative source.

* * * * *

A beekeepers' field meeting will be held in the apiary of Curtis A. Wightman, Rt. 2, Morristown, N. J., on Saturday, September 21, 1946, beginning at two o'clock P. M., on Route 202 about midway between Bernardsville and Morristown. The keynote of the meeting will be queens—finding, introducing, and judging. Bring honey plants for identification.—E. G. Carr, Secy. Treas.

* * * * *

The joint Tampa convention of the Southern Conference and the National Federation (Jan. 12-17, 1947) promises the greatest interest and best attendance ever witnessed by the beekeeping industry. Glenn Jones and his committee will keep you informed of the Federation plans so we shall not attempt to comment on their program.

President Leslie Lewis will occupy the chair for the Southern Conference and Lynn Dewey may welcome the northern groups, and at the same time present the problems of the southern producers and breeders. Package shippers and breeders are clamoring for more open discussions on subjects of vital interest to their business

E. C. Bessonet writes that an oral symposium by Dr. Whitcomb and Dr. Farrar on breeding research and nutritional needs of package colonies would be extremely valuable. Harry I. Rich would like to hear an open discussion on a "Breeders Cooperative Program to Improve Queens". F. F. Viguerie would hear "Artificial Insemination" discussed. Roy S. Weaver wonders if we have the best hive for moving, and if migratory beekeeping is friend or foe. Eugene D. Cutts calls for "Better Instructions for Installing Package Bees" in general discussion. Havilah Babcock wants to hear H. C. Short on "Selecting Good Breeders". M. S. Fortune thinks "Sulfa Drugs in Package Feed" should have a place. N. C. Jensen would like to hear Maurice Dadant and Jack Deyell on "Disease Resistant Queens". John C. Hogg says "Shipping Losses and Sugar Content for Package Feed" should be given a spot. J. H. Girardeau. Jr., thinks "Earlier Packages for the North" would lead to something interesting. Walter T. Kelley would discuss with Dr. Hambleton the need for

a better government sponsored breeding program. Ned Prevost wants a special night for men only. Mrs. R. E. Foster thinks it would be a dangerous thing. A. K. Dickinson says he will supply night life any way they want it, but Mrs. G. G. Puett would settle for good convention tours.

So there you have it coming up fast. If you want a finger in the pie, address the writer before the first of October when our program will be ready for publication. —A. D. Hiett, Chairman, Program Committee, Southern Beekeeping States Federation, Box 683, Lynchburg, Va.

* * * * *

The Annual Summer Meeting of the Empire State Honey Producers' Association took place Saturday, August 10, at Taughannock Falls State Park near Ithaca, New York. In spite of a disappointing honey crop to date in many parts of the state, the attendance was large—over 200 being present. The main topics of discussion between individuals and at the brief program was the confusion existing over the price of honey. It was known that the majority of packers and producers in U. S., in view of the prevalence of black market buying and selling, felt that honey should be on the decontrol list. Dr. Phillips was presented with a handsome purse in consideration of his long years as member of the faculty of Cornell University. Dr. Phillips expects to remain in Ithaca.

* * * * *

The East Tennessee Beekeepers' Meeting was held at the home of Mr. Ed Smalling, Johnson City, Tennessee, August 2, with about 50 beekeepers in attendance. The following officers were elected: President, Ed Smalling, Johnson City; Vice-president, H. L. Basher, Sevierville; Secretary-treasurer, W. D. Reams, Morristown. The meeting next year will be held at W. D. Reams' Apiary, seven miles south of Morristown.—John M. Amos, State Apiarist and Assistant State Entomologist.

* * * * *

With the compliments of the author, Gleanings has received **"Un Rucher Nait"** by Raoul Alphandery, published by the Librairie De Vulgarisation Apicole. This is one of the most beautiful books on beekeeping we have ever seen. Printed in sepia ink and with a wealth of illustrations, many of the pages are works of art. The book consists of 40 chapters, and of 190 pages, and is made up of lessons on practical apiculture. M. (Monsieur) Alphandery is to be congratulated on so beautiful and practical a book, ready for the new day in beekeeping in France.

* * * * *

"HOW GOOD IS DDT" is the title of an article appearing in the Reader's Digest for August, by Anthony Standen. While it is not a universal killer of all noxious insects, it is a destroyer of most of them. Concerning bees, "although poisonous to bees it is slightly less so than insecticides previously used, and may well be a blessing to the beekeeper". The article is worth reading. One thing especially emphasized should be repeated here, namely, "Be careful to read the label on the package containing the drug". The U. S. Department of Agriculture supervises the wording of all of these labels, which must be correct in every particular to safeguard human life.

* * * * *

"Keeping Bees in Maine", Extension Bulletin No. 346, by Charles O. Dirks, Associate Professor of Entomology, appeared in June of this year. It is published by the Agricultural Extension Service of the University of Maine at Orono, and contains useful information on managing bees successfully in that far north state.

An old fashioned skep hive in the apiary of A. H. Bowen of England. In the olden days before the moveable frame hive and honey extractor came into use some of the best colonies in skep hives were killed by sulfur fumes and the combs of honey cut out.

80 Years Among the Bees

By E. R. Root

Continued from June issue

He Laughs Best Who Laughs Last

Owing to a temporary shortage of paper we have been obliged for two issues back to cut out some departments including the one bearing the heading as above. In the June issue, page 342, I was explaining the origin and the development of the large eleven frame Quinby hive put out by Chas. Dadant and its natural outgrowth, and the two story or double story Langstroth brood nest as urged by me as early as 1894. The Dadants, Chas. and C. P., and I, all argued the importance of strong colonies from 1894 to the close of the decade, maintaining that they (1) would swarm less, (2) winter better, and, (3) produce more honey than the small colonies in a single story Langstroth hive.

As in the case of any new thing (sulfa treatment for AFB not excepted) we met all kinds of opposition especially by those who used and advocated the Heddon divisible brood chamber hive. The nature of that opposition and the final verdict after 50 years in favor of the double brood nest is here explained:

The big argument in favor of a double Langstroth brood nest was that the Quinby eleven frame hive was too heavy to lift. It was very much easier to lift one unit of an eight frame outfit, put it upstairs or downstairs as the case might be.

My very good friend, Dr. C. C. Miller (a user of the eight frame nest), at the time could not wholly swallow the idea of a double brood nest. He wrote me a letter reading something like this:

My dear boy, I am afraid you are going a little too fast in the advocacy of this double full depth Langstroth system of beekeeping. I have read all of this discussion. Don't let the critics disturb you. I have a sneaking belief that you may be right and that history will vindicate you in the future.

Also, see what Dr. Miller had to say in Gleanings for 1898, pages 502 and 620:

I notice you're getting your full share of being misquoted and misunderstood but let patience have her perfect work. There is an old saying, "Everyone must eat his peck of dirt", and there are some other things as well as dirt that one seems destined to have his full quota of.

And Then Came the Fireworks of Opposition

For a period of nearly ten years, beginning in 1894, I advocated, almost singe-handed and alone, "double decker" colonies both for winter and summer, against the combined opposition of most of the leaders of the time. Some of my friends could not see why I should be so foolish—didn't I know that the average queen couldn't fill a two story hive with brood and that the surplus honey instead of going into the supers would be stored in and around the brood nest? Nevertheless, I persisted because the Dadants had proved that a queen could fill a brood nest much larger than a ten frame Langstroth hive body. They had successfully operated from 500 to 600 colonies. I continued to argue that a double story Langstroth hive was none too large for a good queen. This meant more brood and more bees at the right time to gather the crop but the Dadants did not believe that the queen would occupy and lay as many eggs in a two story hive with an air space between the two as they would from a large brood nest in a single unit, and there were not a few who agreed with them.

Among the leaders against me was James Heddon whose hives and system I had attacked as unsound for the production of a real crop of honey. Another leader was W. Z. Hutchinson who believed in the Heddon system. There was also G. M. Doolittle who was using the Gallup hives but he found nine such frames sufficiently large after trying 13 and 14 frames. Among them was Dr. C. C. Miller who finally came around to my point of view, but not R. L. Taylor (the champion of the Heddon hive), a lawyer by profession and a good one as well as a beekeeper, He was using 500 of the Heddon divisional brood chamber hives. He put me on the witness stand in the columns of the Beekeepers' Review. Among other things he combatted opinions I didn't hold. If you would like to see how a shrewd lawyer can prove black is white or that I was all wrong in advocating larger brood nests, turn to pages 518 and 519, also pages 736 and 737 in Gleanings, 1898. It is very interesting to me now even if he did make me look like thirty cents then. He didn't like it a little bit when I taunted him with the statement that the little contracted brood nest of the Heddon hive had brought an era of poor seasons for all who used it. I was just egotistical enough to believe that Father Time would bring in a verdict in my favor,and he did. "He who laughs last laughs best."

There are some things worth fighting for. The Heddon hive and many other fads of the past are things of the past. It is the strong colonies, either from one big unit or the two story Langstroth hives, that get the crops. The Dadants, Dr. C. C. Miller, George Demuth*, Dr. E. F. Phillips, James I. Hambleton, and Dr. C. L. Farrar brought on a new era in bee management. Mine was only a small part of the program but it was a starter. I had the space and used it.

If the reader desires to dig down into this history a little further and can have access to one of the libraries, The Langstroth-Root Memorial at Cornell University, or The Miller Memorial at the University, Madison, Wisconsin, the references below will help:

Photostatic copies or typewritten copies can be obtained of all the below at either of the libraries—Miller Memorial Library, Madison, Wisconsin, or Langstroth-Root Memorial Library, Cornell University, Ithaca, New York.

* Mr. George Demuth, in a series of lectures he was giving in California in 1918, before he became Editor of Gleanings, showed the Heddon hive was a mistake because it reduced a single story brood nest by contraction to a half section, and he had tried out the hive.

Gleanings in Bee Culture

1894	Pages 264, 502, 504	(Hives—8 and 10 frame)
1894	Page 952	(Large and small hives)
1895	Page 160	(Dadant's article on large hives)
1895	Page 890	(Two story brood nest)
1897	Page 563	(Two story eight frame hives for strong colonies and reducing swarming)
1898	Page 502	
1898	Page 518	
1898	Page 620	(Dr. Miller coming to see E. R. Root's point of view of breeding in two stories and contracting to one)
1898	Page 720	(E. R. Root favors two story hives for breeding)
1898	Pages 739, 802	(Doolittle, R. L. Taylor oppose large colonies and double deckers)
1899	Pages 610, 611	
1898	Pages 682, 718, 754, 791, 827, 871	(In favor of the large hive)
1899	Page 8	(C. P. Dadant on large hives for comb honey and size of brood nest)
1899	Page 496	(Keep Langstroth hive, Dadant hive discussed)

Dr. Dyce Succeeds Dr. Phillips

Following the retirement of Prof. E. F. Phillips from beekeeping work at Cornell University, Dr. Elton J. Dyce, his associate for many years, is taking charge of the apiculture division in the entomology department. The announcement came today from Dr. Charles E. Palm, head of the department.

Dr. Dyce, a native of Ontario, Canada, received degrees from Ontario Agricultural College and McGill University, and in 1931 the Ph.D from Cornell. His life interest has been in the field of beekeeping. While still a graduate student at Cornell he discovered a method by which honey could be made into a new tasty, dripless form, so that it could be used as a spread like butter. The discovery was made after he had run more than 2000 experiments, and the "Dyce Process" has since been perfected and patented. Millions of pounds of honey are now packed annually in this crystalline form.

The professor returned to New York State from Canada in 1940 as manager of the Finger Lakes Honey Cooperative at Groton, and two years later joined the apiculture staff at Cornell where he has been extension apiarist, working with beekeepers around the state.

Dr. Dyce is a member of Sigma Xi scientific society, and the author of bulletins and numerous articles on apiary and honey house management.

Another staff member will be added to apiculture division in the near future, Dr. Palm said.

TALKS TO BEEKEEPERS

(Continued from page 493)

We then talked about artificial insemination of queens, which has been carried on for some years. We concluded that this could hardly be done economically on a large scale, and so we left this problem of getting queens mated normally during adverse weather conditions unsolved.

On this matter of artificially inseminated queens, I well recall 22 years ago this coming winter taking an advanced short course in beekeeping under Dr. Phillips at Cornell University during January. Dr. Lloyd Watson of Alfred, New York, was at the meeting.

Dr. Watson was scheduled for a demonstration of artificially inseminating a virgin queen. On the day preceding the demonstration a package of bees containing some drones and virgin queens was received from a queen breeder in southern Louisiana. It was 15° below zero at Ithaca, New York, the day the package arrived. However, the bees appeared to be in fairly good condition, especially after they were placed in a room of normal temperature. I shall never forget the interest manifested by the large class of beekeepers, men and women, as Dr. Watson proceeded to carry out the artificial insemination of some virgin queen bees. By the way, a book by Dr. Watson on this subject is or should be available for any who are interested in the rather fine and complicated technique of this work. I might say that this technique has been somewhat modified and perhaps improved since that time. A year ago last summer I saw Mr. Roberts of Madison Bee Culture Laboratory perform a similar operation.

Preparing Colonies for the Fall Flow

At the Ohio meeting one of the speakers mentioned the necessity of developing populous colonies for the fall honey flow in order to secure the maximum yield. Perhaps some of us forget that this is necessary. If colonies are not up to the proper peak of strength at the time the fall honey flow begins, a maximum crop will not be secured.

In this vicinity the fall flow usually begins about the first of September. Years ago we used to count on the fall flow beginning about August 21. Just why the flow comes later than it did some years ago I am unable to say. Furthermore, the fall honey flow continues later into the and this is unaccountable. One of the best fall flows I have seen occurred in 1943. September in this area was quite cold. The first 14 days of October were warm—in fact, we had summer weather with the temperature between 80 and 85. White aster was in full bloom. Nectar rolled in at the rate of from three to seven pounds per day. Some apiaries put up over 50 pounds surplus besides filling the brood chambers solid for winter. This is the exception rather than the rule, but it does happen once in a while. Fortunately, we had some warm weather following the late aster flow which gave the bees a chance to ripen the honey properly. Unripened aster honey is not good for wintering bees. It usually results in dysentery, especially if long spells of sub-zero weather prevail during the winter months.

The Last Preparation for Winter

As has been stated earlier in these talks, August is really the beekeeper's new year and apiary management from then on should include the consideration of a good queen for each colony, an ample amount of stores, honey, and pollen, and the necessary amount of protection for bees.

During September the colonies should be checked through carefully. If perchance a failing queen is found, it is not too late to introduce a young laying queen. If a weak colony is found, one that would not winter successfully, this colony should be united with a normal colony. One way to do this is to lift the hive of bees, after removing the bottom board, on top of a colony to which it is united. If this uniting is done late in the evening, with as little disturbance as possible, there will be very few, if any, dead bees found at the hive entrance the following morning. If there is no choice of queens, they will fight it out and the better queen of the two will usually remain in the hive, the other queen being disposed of.

The Food Chamber Should be Jammed Full

Some use deep extracting supers as food chambers, others use shallow supers. The advantage in using the deep food chamber is that the frames in the food chamber are then

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Honey Report, July 1946

Reissued by Glenn S. Ray, Agricultural Statistician, BAE, Columbus, Ohio.
Issued by the Bureau of Agricultural Economics, Washington, D. C., July 23, 1946.

The sugar shortage and continuance of favorable honey prices resulted in another increase in colonies of bees this year. There were 5,787,000 colonies of bees on hand July 1, 1946. This total was 6 percent above that of a year ago and 33 percent above that on July 1, 1940. The 1946 estimates are based on reports from about 5000 beekeepers, as received by the Bureau of Agricultural Economics, covering farm owned and non-farm owned bees.

Although new bee equipment has been scarce, beekeepers salvaged old equipment to supplement the new and made a fairly substantial increase in number of colonies. However, the 1946 goal set by the United States Department of Agriculture of 8 percent increase in number of colonies was not reached, mainly due to lumber shortages which restricted the production of equipment manufacturers.

Colonies of bees increased in all parts of the country except the Western States, where the number of colonies was the same as a year ago. Colonies increased 10 percent in the West North Central States, 9 percent in the East North Central, 8 percent in the South Central, 6 percent in the South Atlantic, and 2 percent in the North Atlantic States.

New spring colonies made up 23 percent of the number of colonies on hand July 1, compared with 21 percent new colonies on hand a year earlier. About 43 percent of the new colonies were obtained from package bees. The use of package bees to make colony increases varies widely over the country, ranging from 8 percent of the new colonies in the South Central States to 76 percent in the West North Central States.

About 15 percent of the colonies were lost during the winter and early spring compared with 16 percent for the 1944-45 season, 14 percent for the 1943-44 season and 21 percent for the 1942-43 season. Wintering conditions over the country as a whole were fairly good. Warm weather during March was very favorable for brood rearing, but was followed by a cold rainy period extending through May and the first half of June. This period was unfavorable for bees and necessitated heavy feeding in many areas. Starvation was, as usual, the principal cause of colony loss. Other causes were queenlessness, foulbrood, insects, and spray poisoning, in order of frequency of reports. It is emphasized that these losses are for winter and spring and do not cover losses during the honey producing season.

TALKS TO BEEKEEPERS

(Continued from page 508)

interchangeable with the frames in the bottom food chamber. This seems to be an advantage. Furthermore, a deep food chamber will hold more honey than a shallow food chamber.

As brought out editorially, the combs in the food chamber should be quite well filled with honey in addition to some honey in the lower chamber. This may appear to be quite an amount of honey to leave for a colony. Howover, it does require a considerable amount of honey to feed a colony during the winter and early spring months.

Possibly thermostatically controlled hives maintained during the winter and spring months, or wintering bees in a thermostatically controlled winter repository, would reduce the amount of honey used by the bees during the winter months. Theoretically, this sounds rather sensible. It may work out in practice. Time will tell.

Normal colonies use a large amount of honey during the early spring months, especially during warm weather when brood rearing is well started.When there is a good spring honey flow from fruit bloom and dandelion, this helps out in that a large portion of the honey used in early brood rearing is replaced. In this area we cannot count on a spring honey flow regularly, therefore it seems necessary to retain a liberal amount of honey for spring feeding of bees. This seems espe-

(Continued on page 524)

Bees, DDT, and Other Agricultural Chemicals

By George F. Knowlton
Utah Agricultural Experiment Station, Logan, Utah

With the appearance of such a potent insect control weapon as DDT, many beekeepers, orchardists, and seed growers felt concern with regard to the safety of honeybees, wild bees, and other beneficial insects. Field studies and general observations made during 1945 have to some extent decreased the fears of beekeepers. It appears that less risk exists to bees from DDT than was at first supposed. Increased number of honeybees and wild bees has occurred in fields, and higher yield of honey has often followed DDT treatments of alfalfa fields for lygus and other insect control, when such application was made just **before** blossoms appear. This indication is encouraging. However, reasonable caution in use of DDT and other agricultural chemicals still is necessary.

Farmers and fruit growers are urged to cooperate in safeguarding honeybees, wild bees, and other insect pollinators by: (1) Applying the first lygus bug control DDT dust to alfalfa seed fields just **before** blossoms appear. (2) Not spraying or dusting orchards, forage, or crop plants with DDT or other insecticides while open blossoms are present. (3) Clipping attractive undercover plants before poisonous chemicals are applied to orchards or shade trees. (4) Notifying nearby beekeepers before making extensive use of DDT or other spray or dust materials. If desired, beekeepers then may move their bees to a safe location **before** large-scale chemical treatments occur. (5) Keeping gardens and tomato fields free from weeds upon which poisonous spray and dust materials will collect. (6) Applying necessary dusts at a time when the air is relatively still. (7) Not permitting dusts or sprays to drift upon fence row sweet clover, alfalfa, or other blossoming plants being worked by the bees. (8) Making necessary alfalfa weevil dust applications before the alfalfa blossoms, and at a time when extensive grass pollination is not occurring in the fields. Bees collect much pollen from grasses, which sometimes grow abundantly in alfalfa fields. (9) Dusting squash, melons, and cucumbers at a time when the blossoms are closed; usually before 6 A. M. or after 4 P. M. There is some risk of injury to squash and melon foliage if present DDT materials are applied. (10) Spraying and dusting intelligently. Do not apply more chemicals, nor stronger dosage than necessary to satisfactory control. (11) Storing and handling DDT and all other poisonous agricultural chemicals in a manner safe to persons, livestock, and wildlife.

Proper Timing Important in Treating Seed Alfalfa with DDT

U. S. Dept. of Agriculture, Agricultural Research Adm., Washington, July 13, 1946

DDT should not be applied to seed alfalfa while it is in bloom, because of the danger of poisoning bees, the United States Department of Agriculture warns. Honeybees and wild bees visit the alfalfa blossoms and are essential to their pollination and the setting of seed. Reports received by the Department indicate that DDT may have been responsible for severe injury to honeybees where growers have applied it to seed alfalfa that was in full bloom.

If seed alfalfa is treated with DDT for control of Lygus bugs the dust should be applied while the flowers are in the bud stage and before many of them have opened. In field trials in Utah and Arizona a single application of dust containing 10 percent of DDT in pyrophyllite, talc, or other suitable carrier at the rate of 20 pounds per acre when or just before the first flowers begin to open has given good protection of the crop against Lygus bugs, leaf hoppers, alfalfa weevil, aphids, and thrips. If applied at that time and rate no injury to bees has been detected and profitable increases in seed yields have been obtained.

According to the Bureau of Entomology and Plant Quarantine, the chaff and straw from DDT treated alfalfa seed should not be fed to livestock. More information is needed on the residues of DDT present in the threshings and their direct or indirect toxic effects on livestock and man. Pending further information on residue hazards DDT insecticides should not be used on alfalfa that is to be pastured, or cut for hay, meal, or silage.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 10c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices. obtainable. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Mich.

Fancy white clover comb honey, $9.00 case of 24 sections. Clarence Engle, Kearneysville, W. Va.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WE PAY CASH for extracted clover honey. Fairfield Honey Company, Millersport, Ohio.

WANTED—All types of clover and fall honey, 1945 crop. Cloverdale Apiaries, Fredonia, N. Y.

WANTED—White and amber honey, any amount. D. F. Treap, 316 Keenan Ave., Cuyahoga Falls, Ohio.

WANTED—EXTRACTED HONEY—Clover or light amber. C. H. Denny, 483 Moody St., Akron, Ohio.

HONEY & BEESWAX—Highest prices paid. Mail samples. Advise quantity. BRYANT & SAWYER, LOS ANGELES, CALIFORNIA.

WANTED—HONEY—Strained, chunk, or section. No amount too large nor too small. Top price. Spot cash. Lose Brothers, 206 E. Jefferson St., Louisville 2, Ky. Call JA 1015 collect.

CASH FOR YOUR HONEY—Extracted or comb. Regular trade, send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades. Carloads or less. Also beeswax. Pay top prices. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich St., New York 7, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Calif.

WANTED—Honey, extracted or comb. Mail sample, quote price. SEIFERT & MANN, 106 South Water Market, Chicago, since 1889.

WE DARE YOU TO sell us some honey. Cause we punish you with the highest possible price. Oh, you don't remember the name? Just ask the missus. She remembers your honeymoon. The Honeymoon Products Co., 39 E. Henry St., River Rouge 18, Mich.

COMB HONEY—please advise quantity you have—size sections and how packed. I also need chunk honey in 16-oz. glass. F. H. Hauck, P. O. Box 84, Kew Gardens, N. Y.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—Clover extracted and comb honey, any quantity. C. Jankowski, Prairie View, Illinois.

HONEY WANTED—CARLOADS ONLY. WHITNEY HONEY COMPANY, PUYALLUP, WASHINGTON.

HONEY WANTED—All grades and varieties. Highest cash prices paid for a can or carload. Mail samples. State quantity. CLOVER BLOOM HONEY COMPANY, Box 276, Minco, Oklahoma.

Mr. Beekeeper.

"Get all your money
when you sell your honey"

The above phrase would be a good safe rule for all beekeepers to follow. If a buyer cannot pay for the honey he takes, don't risk a future loss by selling to him; and this year you don't have to give credit to sell your honey crop. That is just good common horse sense.

We have seen many beekeepers end up with less than they expected because of selling their honey on a partial payment plan.

The Alexander Company always pays cash for what they buy when they buy it, and no beekeeper has ever suffered a loss by dealing with our firm. We need your crops again this year as in the past, and we will again pay top cash prices. Remember, Mr. Beekeeper, The Alexander Company was in the honey business long before the war and high prices, and we will still be asking for your honey long after this present condition has passed.

Our new plant will need hundreds of tons of honey to keep it going, and we will want your amber honey for our baking trade. Our truck will pick up at your door. Just drop us a card asking our bid, and remember, Mr. Beekeeper, whether you sell us or not,

"Get all your money
when you sell your honey"

Send your card today to:

THE ALEXANDER COMPANY
819 Reynolds Road
Toledo, Ohio.

WANTED—Comb and extracted honey, any quantity. Poland's, Jefferson, Ohio.

WANTED—Light extracted honey, clover preferred, in 60's. J. Jones, 115 West 82nd St., New York 24, N. Y.

WANTED — White and amber honey. Joseph Fekel, R. 4, Vineland, N. J.

HONEY WANTED

All Grades - Any Quantity

Bryant & Sawyer

Los Angeles Honey Co.

2425 Hunter Street

Los Angeles 21, California

COMB HONEY NEEDED

Please advise the quantity you have —size section and how packed.
I also need chunk honey in 16-oz. glass.

Frank H. Hauck

P. O. Box 84 Kew Gardens, N. Y.
Bank reference furnished on request

WANTED: Extracted Honey All Kinds

One can or a carload—what have you? Mail your offerings and samples to us. Prompt action. Cash on delivery.

JEWETT & SHERMAN COMPANY

Lisbon Rd. & Evins, Cleveland 4, O.
1204 W. 12th St., Kansas City 7, Mo.

Soy Flour and Pollen Traps

We are distributors of Staley's Lo-Fat, High Protein expeller processed soy flour for beekeepers. We offer the finest quality in our soy flour and pollen traps.

KILLION & SONS APIARIES

Paris, Illinois

BEE STINGS

Pheno-Isolin stops the pain and quickly reduces the swelling. Takes the Terror out of beekeeping. Results guaranteed.

4-oz. bottle, $1.00 Postpaid.

The Force Co., Scranton 10, Pa.

Improved Rosedale Steam and Electric Uncapping Planes

Price $7.50 for steam and $10.00 for the electric plane. Extra cupper blades, 75c.

Delivery charges extra.

John J. Maendel

Mfg. Steam and Electric Uncapping Planes
Portage La Prairie, Manitoba, Canada.

WANTED—1,000,000 lbs. of honey before October 1st. Comb and extracted white, amber, dark, or what have you. Sample desired if honey is not well flavored and white. Pick up by truck, pay cash in advance. Will pay highest prices possible for your honey. Albertus Knoll, R. D. 1, Holland, Mich.

FOR SALE

HONEY LABELS — Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples and prices. C. W. AEPPLER COMPANY, OCONOMOWOC, WISCONSIN.

QUEENBEE PAINTING OUTFITS $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

I SELL BEST BEE-HUNTING OUTFIT —Grover, Bristol, Vt.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries. Manufacturers of Beekeepers' Supplies, Onsted, Mich.

FOR SALE—250 gallon honey tank with 2-inch gate. Good condition, reasonably priced. R. C. Bish, Tiffin, Ohio.

WRITE FOR LOW CASH price glass jars and 5 lb. tin pails. Complete stock. Prompt shipment. Roscoe F. Wixson, Dundee, N. Y.

We carry a complete stock of bee supplies and honey containers. Write for our price list. Prairie View Honey Co., 12303 12th St., Detroit 6. Mich.

10-FRAME DEEP SUPERS with nice drawn extracting combs. Guaranteed no disease. $4.50 each. Irvin VanDevier, Medina, Ohio.

CLIP QUEENS without handling. SIMPLEX TRAP removes queen from hive, holds her in position for clipping elsewhere, without annoyance of flying stingers. $1.75 postpaid—free circular. George Leys, 48 Drake Ave., New Rochelle, N. Y.

FOR SALE—Complete 300 colony outfit. All standard ten-frame equipment. Plenty of equipment. Complete extracting unit. Sell as unit only. Inspection certificate furnished. L. K. Shaffer, Delphos, Ohio.

FOR SALE—50 used double wall hives, new frames with wired foundation installed, $300.00. Good condition. Otto Hurd, Phalanx Station, Ohio.

FOR SALE—380 colonies bees plus power extractor, and three 2-ton honey tanks with covers. Must sell due to poor health. Inspection certificate furnished. A. D. Hazell, 1101 Elizabeth St., Pasadena, Calif.

Taking bees South this fall? For cash sale only, tractor-trailer outfit, complete with spacers for hauling 300 colonies; 1941 Ford tractor, long wheelbase, 2-speed axle, 95 h. p. engine, original tires, sleeper saddle; tanks, vacuum control brakes, on tractor and trailer. Trailer, which is 23 feet van type with open front and rear, has two fans available for converting to forced ventilation and icing system of moving bees. Trailer available separately, if desired. William L. Coggshall, Ludlowville, New York.

GOING—825 hive factory made outfit; 2100 drawn comb extracting and comb supers, two extractors, melter, three vats, knives, tools, pump, 15 horse boiler and heating outfit. Inspection certificate furnished. Retiring account poor health. First time offered. First fair offer gets it. Run here or move. L. M. Gulden, Englevale, N. Dak.

FOR SALE—80 swarms of bees in ten frame hives, complete with packing cases. This includes 210 supers, queen excluders, certificate of inspection and location if desired. L. Claude Stevens, Venice Center, New York.

FOR SALE—Entire beekeeping business in Michigan—400 colony outfit. No disease, certificate furnished. Excellent locations, modern fireproof honey house 28 x 46 completely equipped. Located in village. Bee cellar and truck. Box 930, Gleanings, Medina, Ohio.

BEES AND QUEENS FOR SALE

Gleanings cannot guarantee that all bees advertised for sale in its classified columns are free from disease. We use all possible care in accepting advertisements, but we cannot be held responsible in case disease appears among bees sold. We suggest that prospective buyers ask for certificate of inspection as a matter of precaution.

PACKAGE BEES with young laying Caucasian queen; 2 lb. package with queen, $3.80. 3 lb. package with queen, $4.80. Miller & Evans, Route 1, Three Rivers, Texas.

ITALIAN QUEENS, satisfaction assured, $1.00 each. Write for quantity prices. Lange Apiaries, Llano, Texas.

CAUCASIAN QUEENS, $1.00 each. Epling's Apiaries, Route 2, Covington, Va.

GOLDEN ITALIAN QUEENS — finest quality, select, $1.25 each up to 50; over 50, $1.10 each. Health certificate with every order. Carolina Bee Farm, W. O. Curtis, Mgr., Graham, N. C.

IMPROVED ITALIAN QUEENS—$1.00. From a strain that produced over 600 lbs. of honey per colony. Henry Loehr, Jr., Caldwell, Texas.

HONEY-FLOW ITALIANS—NORTHERN QUEENS scientifically reared and carefully selected to please. Immediate shipment, $1.00 each. Greulick & Son, Altamont, New York.

GOOD QUEENS FOR SUMMER AND FALL REQUEENING. Gentle three banded Italian stock that has made outstanding records for honey production in areas where large crops are made. We now have the experienced help necessary to give you good queens and prompt service. Select young laying queens, $1.10 each; 25 to 99, $1.00 each; 100 or more, 90c each. Postpaid. Also package bees from now until October. They make fine summer increase. H. C. Short, Fitzpatrick, Ala.

NORTHERN BRED QUEENS — Hardy honey producing Italians, $1.00 each. Shirl Baker, Rodney, Michigan.

REAL PETS—Brown non-stinging bees. 1947 queen price $2.00. Booked up this season. Thank you. Brown's Apiary, Cape May Court House, N. J.

WILL SELL part of my bees in North Central Ohio or 250 three-story 10-frame colonies with 9 frames. Take your pick. Certificate of inspection furnished at time of sale. Price $3250 cash. Box 920, Gleanings, Medina, Ohio.

DEPENDABLE 3-BANDED QUEEN BEES

Place your order NOW for Summer and Fall Delivery

June 1st, through October.

1 to 11, $1.00 each
12 to 99, .90 each
100 or more, .80 each

TERMS; Cash with order
Live delivery and Satisfaction Guaranteed,
Health Certificate with each shipment;

John C. Hogg, Tifton, Ga.

QUEENS FOR REQUEENING

Our bright three-banded Italians
The original Mott Strain can't be beat.
Prices for balance of season:
1 to 24, $1.10; 25 to 99, $1.00
100 up, 90c each.
We guarantee safe arrival, satisfaction

Taylor Apiaries
Box 249 Luverne, Ala.

ITALIAN BEES AND QUEENS

We regret that we do not have any more of our fine Italian Queens, but we are booking orders for 1947.

B. J. Bordelon Apiaries
Moreauville, La.

Root Quality Bee Supplies

Honey Wanted

Comb and Extracted

MAY'S BEE APIARIES
Andover, Mass.

OLDEST BEE JOURNAL IN THE ENGLISH LANGUAGE

Keep up on markets, practices, scientific data, regulations and plant possibilities.

1 year—$1.50; 3 years—$3.00 U. S. and Canada. Foreign postage 25c a year extra.

AMERICAN BEE JOURNAL

You'll Like
The Beekeepers' Magazine

It's Spicy — It's Independent

Send for your free copy and special introductory subscription offer today.

ELMER CARROLL — Publisher
Rt. 5 Box 181 Lansing, Mich.

THANK YOU, one and all...

for the wonderful business you have sent our way this season. Truly it is the best and largest we have ever had.

The weather was good as a whole, only a couple of days was it too bad to make shipments.

Queen mating was a little slow, but fortunately that was not serious in regard to shipping.

Losses reported have been very light and we have made an effort to replace or settle these as fairly and quickly as possible, even though we felt the loss would not be paid by the carriers.

Again we "THANK YOU" and look forward to supplying you another season.

Summer and fall queens, $1.00 ea.

Rossman & Long

P. O. Box 133 **Moultrie, Ga.**

CAUCASIAN QUEENS—Booking orders for September delivery. 1-10, $1.25 each; 10-49, $1.10 each, 50 and over, $1.00 each. Howard E. Crom, Rt. 1, Box 75, Ripon, Calif.

THREE BANDED Italian queens, 1 to 25, $1.10 each; 25 up, $1.00. Health certificate with every order. Alamance Bee Co., Graham, N. Carolina.

BREWER'S LINE-BRED CAUCASIANS —We are closing our queen yards for 1946 on Sept. 1st. Now booking orders for April delivery. Brewer Brothers Apiaries, 3217-G Hawthorne Road, Tampa 6, Florida.

SOLD OUT on queens this season. Booking orders for Caucasian package bees, 1947 delivery. Lewis & Tillery Bee Co., Greenville, Ala.

BEES WANTED

WILL BUY 300 to 1000 colonies bees and supers with or without crop, standard equipment. Write stating conditions, locations, price, and reasons. Gleanings in Bee Culture Box 846, Medina. Ohio.

WOULD LIKE TO HEAR of bees for sale in western Idaho and eastern Wash. Address Box 893, Kirkland, Wash.

WANT 400 colonies bees, more or less, on shares, for 1947. Arthur Edalgo, Nashville, Ga.

WANTED TO BUY

WANTED—Four frame reversible extractor, good condition. Will pay freight. State price crated and shipped. Carl Belcher, 749 Elmgrove St., Seattle, Wash.

HONEY

Wanted

A Can or a Carload

Top Prices Paid

Will furnish 60-lb. cans if desired

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

WANTED — Root two-frame or four-frame reversible extractor in good condition. Brookdale Farm, Barnes, Kansas.

WANTED—To know if it is possible to get one half bushel each of pecans and hickorynuts and a bushel of butternuts. Write stating price F. O. B. to W. J. Young, 166 N. E. 8th St., Miami, Florida.

WANTED—One copy of the book "Honey Plants of North America". R. F. Peace, 508 9th St., Pacific Grove, Calif.

WANTED—Small bee outfit in Wisconsin or Minnesota with locations. Box 900, Gleanings, Medina, Ohio.

WANTED TO RENT—Good stock and grain farm of 80 to 160 acres, must be suitable location for bees and in Illinois, Indiana, Ohio, Michigan, or Iowa, by successful experienced farmer who can furnish references. Chas. W. Pyle, Paris, Illinois, Route 5.

HELP WANTED

WANTED—Strong young man of good character as helper for the last of the season, 23 apiaries. Chance for job for next year. Ray C. Wilcox, Odessa, N. Y.

WANTED — Experienced queen yard man. Year around employment in yards and shop. We can furnish a good, modern home to live in. Give full information, age, experience, and salary expected in first letter. H. C. Short, Fitzpatrick, Ala.

WANTED — Experienced package bee man to take over large Southern package business with all equipment and steady demand. Must be able to organize and manage a crew, and to finance a share of operating capital on share plan. Box 2646, Gleanings, Medina, Ohio.

SUPPLIES

WARNING N. W. BEEKEEPERS: Glass and tin honey containers continue to be very difficult to obtain. Don't get caught short again this fall. Order at least part of your container requirements NOW. You'll be glad you did. Send for price list. HONEY SALES COMPANY, 1806-08 No. Washington Ave., Minneapolis 11, Minn.

SEEDS

ANISE HYSSOP SEED, Packet, 25c; ½ ounce, $1.10. James Beecken, Elgin, Ill.

ANISE HYSSOP, wonder honey plant, blooms from June until frost. New crop seed, one ounce, 20,000 seeds, $2.00; ¼ pound, $5.00, postpaid. Pellett Gardens, Atlantic, Iowa.

BLUE VINE now in bloom in Southern Indiana. (Aug. 5th) Send for complete story, facts, and information about this wonderful honey plant. Tritox Chemical Co., Washington, Indiana.

MISCELLANEOUS

EARTHWORM CULTURE Send postcard for valuable FREE bulletin, with review on "Intensive Propogation and Use of Earthworms in Soil Building". Thos. J. Barrett, Earthmaster Farms, Box 488-G, Roscoe, Calif.

POSITION WANTED

WANTED—Veteran desires year round work at beekeeping. 8 years' experience, 4 as inspector. Familiar with AFB, EFB, sacbrood, poisoning. Will travel. Ray Prudhomme, 50 N. 17 St., Beech Grove, Ind.

Moore's Strain

Away back in 1879, I commenced rearing Italian queens with the object of improvement constantly in view. By careful selection during all these years I have succeeded in producing a strain of three-banded leather-colored Italian bees known as Moore's Strain of Italians which has won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Send for descriptive circular and read reports from those who have tried them.

Untested queens, $1.00 each, any number

J. P. Moore, Falmouth, Ky.
Route 3

Former address: Morgan, Kentucky.
Safe arrival and satisfaction guaranteed

For 1946 Queens: (Postage paid)

Quality Three-Banded Italian Queens:

1-10	$1.05
11-99	.95
100-over	.85

For 1947 Package Bees and Queens:

We are booking orders for spring delivery subject to prices set in the fall. For assurance of good dates for next spring let us know your needs early.

GIRARDEAU APIARIES
J. H. Girardeau, Jr., Mgr. Tifton, Ga.

The John M. Davis Strain

Bred the Davis Way

Italian Queens!

Guaranteed purely mated and to satisfy you in every way or your money refunded. You be the judge!

	1-24	25-up
Young laying queens	$1.25	$1.15
Young tested queens	1.50	1.40

After June 30th, Untested, $1.00 each, any number

LITTLE'S APIARIES
P. O. Box 122 Shelbyville, Tenn.

Quality and Production-bred
ITALIAN QUEENS 90c each
Book your order now for fall requeening

Heart O' Texas Apiaries
Box 1203 Waco, Texas

RED STICK APIARIES & CO.

Package Bees and Queens
Twenty Six Years as Commercial Queen Breeders
Oldest Combless Package Bee Shippers in Louisiana

ITALIAN QUEENS

Daughter Queens of Disease Resistant Stock
1 to 10 ..... $0.90 ea.
11 up ..... .65 ea.
Why Pay More For The Best

BACK YOUR FUTURE WITH U. S. SAVINGS BONDS

RED STICK APIARIES & CO.
Member Louisiana Retailers Association
Main Office, 113 Lee Avenue
Donaldsonville, Louisiana
Telegraph Western Union

Gentle Northern Queens

From tested 3-banded Italian breeding stock

All queens are reared under natural conditions in large over-wintered queen-right colonies. Nature's way of producing large fully developed queens. These hardy northern strains of Italians are meeting with approval in many parts of the world.

Prices June 1st to Oct. 15th:

Young untested
1-24 ..... $1.10
25 up 1.00

Young tested
Any quantity $2.00

Queens shipped Airmail Postpaid
Prompt service, satisfaction.

Barger Apiaries
Carey, Ohio

GOLDEN WEST!

Try our western-bred queens and bees, for they are the best. The war is over now and the Clifton Brothers are back together again to give more efficient service and better bees and queens than ever before.

CLIFTON Apiaries
Oroville, Box 684, Calif

INSECTICIDES

WAX MOTH CONTROL—Protect your extracting combs from moth damage with paradiclorobenzine. Non-poisonous, non-inflammable, harmless to persons using or handling. Recommended by Government and experiment stations. Death to wax moth and clothes moth. One ounce treats ten brood combs. Two pounds parcel post, $1.00; Five pounds, $2.00. Tritox Chemical Co., Washington, Indiana.

RABBITS

ORIGINAL GIANT CHINCHILLA RABBITS. Prolific. Profitable. Most valuable fur. Big demand. Delicious meat. Markets furnished. Willow Brook Farm, R129, Sellersville, Pa.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7s, 6d., ($1.50) International Money Order. Apply Editor, Indian Bee Journal, Ramgarh, Dist., Nain Tal, U. P. India.

WESTERN CANADA BEEKEEPER, official organ of the Manitoba Beekeepers' Association. One year, $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $2.25. Wallingford Building, Winnipeg, Canada.

Read the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, E. E. A. Leach, Box 57, East Rand P. O., Transvaal, South Africa.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information on range sheep than any other magazine published. Subscription, $1.50. Hotel Cactus, San Angelo, Texas.

TOO LATE TO CLASSIFY

WE WILL BE CLOSED for inventory October 28 to November 1. No sales or shipment will be made. M. J. Beck Co., Lansing, Michigan.

COMB HONEY—Several hundred cases clover in 4¼ sections will take best offer. Barger Apiaries, Carey, Ohio.

QUEENS

Morrison's Northern Bred Leather Colored Italian Queens that satisfy. Priced at $1.25 each; 100 lots at $1.00 each. Safe arrival and satisfaction guaranteed.

West Branch Apiaries
Grover Hill, Ohio

HONEY WANTED

Packed in one, three, and five pound jars.
We pay the highest ceiling prices for good, well-packed clover honey. Several truckloads needed at once.

Ellsworth A. Meineke

Arlington Heights, Ill.

QUEENS QUEENS REQUEEN NOW!

Heavy honey production requires good queens. Beginners: Do not allow old worn-out queens to remain in your colonies over the winter. Requeen now.

Progeny-Test 3-Banded Italians of Highest Quality.
Also Mraz's Strain of high quality daughters of stock bred for resistance. Health certificate accompanies all shipments.

1 to 10, 90c each; 11 to 25, 80c each; 26 to 100, 75c each.

For larger numbers write for prices. No extra charge for clipping.

GARON BEE COMPANY.....Donaldsonville, La.

QUEENS * BESSONET'S * QUEENS

This is the last month to requeen, so we urge you to complete your requeening before it is too late. Prices.

1-24....$1.10 25-99....$1.00 100 or more....90c.

BESSONET BEE COMPANY, Donaldsonville, La.

CARNIOLANS

No more queens for balance of season.

Ephardt Honey Farms, Plaucheville, La.

LEATHER COLORED ITALIAN QUEENS
MIDDLE TENNESSEE APIARIES

1 to 25, $1.25; 26 and up, $1.10—From Imported Strains.
¼ books orders. Balance before shipping. Add 5 cents for all queens by air.
(All Queens after June 15, $1.00)

J. B. TATE & SON

1029 No. 4th St., Nashville 7, Tenn. Tel. No. 34509M

Look for this Sign When You Want QUALITY AT LOW COST

Trade Mk. Reg. U. S. Pat. Off.
KELLEY — "The Bee Man"

QUEENS

75c each

Write for prices, 25 or more. Young Three-Banded Laying Queens. Fresh from our Yards. Health Certificate with each Shipment. Shipped Daily from Paducah.

The Walter T. Kelley Co., Paducah, Ky.

YES,

WE STOCK

THE FOLLOWING:

5 gallon cans

5 and 10 pound pails

2 pound glass jars

1 pint glass jars

1 pound glass jars

8 ounce glass jars

Shipping Cartons for:

5 gallon cans

5 gallon pails

2 dozen section combs

1 dozen section combs

Window cartons

Plain Cellophane

Moistureproof Cellophane and cutcomb packages

Label paste

Honey labels

WRITE FOR PRICES

M. J. BECK COMPANY

Successors to M. H. Hunt & Son

510 N. Cedar St. Box 7

Lansing 1, Michigan

PRODUCING BETTER BEESWAX

(Continued from page 477)

should be kept scrupulously clean.

To prevent possible leakage of honey, the box itself should be made preferably of black iron. Tin is all right but it reflects rather than absorbs the heat and should therefore be painted dull black if used.

The box should be made so that it is bee tight. The glass should be easily removed for cleaning or for adding new scraps.

A "solar" extractor should stand with an exposure and slope toward the South where it will get the greatest amount of sunlight. Each morning the accumulation of wax should be removed in order to make room for the next day's melting.

The sun partially bleaches the wax and there is no beeswax anywhere that approaches the quality of that from a solar or sun extractor. However, if the old combs are rendered in a sun extractor, the refuse should be put aside for further rendering later in a good press. The main advantage of the solar extractor is for broken bits of new comb or scraps.

The original cost of a solar extractor is not great. It works for itself, yields the best quality wax, and the upkeep is small.

A Good Investment

Requeen early with good young queens of proven quality. They will pay for themselves many times over in next season's output.

EITHER STRAIN

Italians or daughters of queens bred for resistance.

QUICK SERVICE

1 to 24, $1.10; 25 to 99, $1.00
100 up, 90c.

A. E. SHAW

Shannon. Mississippi

BETTER BRED QUEENS — Three-banded Italians

Head your colonies with our Better Bred Stock. They have proven their good qualities throughout the U. S. A. and Canada.

Use them for increase, requeening, and swarm control.

70c each for remainder of the season

CALVERT APIARIES Calvert, Alabama

DRONES SELECTED BY BIRDS

(Continued from page 479)

flowers of the tree. Underneath the tree there was almost always to be seen the heads and thoraces, still living and buzzing, of honeybees. I could hear the kingbirds snap their bills, but cannot say that I ever saw them snip the abdomen from a bee. I am certain, however, that the mutilated bees under the tree were due to the depredation of the bee martins. I feel it safe to assume that flycatchers can handle stinging bees without being hurt, but that birds that catch their prey with the mouth instead of the bill must select stingless drones.

Under date of June 23, 1945, Dr. Alexander Wetmore kindly furnished this observation: "In June, 1911, at Lares, Puerto Rico, Senor Linares, who had a small apiary, reported to me that birds were active among his bees. I spent parts of two days studying this matter and found that the principal species attracted was the Gray Kingbird, Tyrannus dominicensis. I shot a number at this apiary and found domestic bees of the worker group in the stomach of all of them. While some other species were suspected, namely another large flycatcher, Tolmarchus taylori, I did not find that they were troubling the bees. The kingbirds were definitely taking workers and not drones by actual stomach examination".

The list of the United States Fish and Wildlife Service of birds that are known to eat bees shows that our observations on the Black Phoebe are unrecorded. The U. S. D. A. Farmer's Bulletin No. 630, revised, 1926, states on pages 23 and 24 that kingbirds eat a great majority of drones. Six hundred and sixty-five stomachs of the Eastern Kingbird (Tyrannus tyrannus) were examined and 22 contained 61 honeybees of which 51 were drones and 8 were workers; 62 stomachs of the Western Kingbird contained 30 honeybees of which 29 were drones and one a worker. This discrimination makes me believe that a phoebe also probably selects drones, but there is no observational evidence of selection as there was among the swallows. I never saw kingbirds appear to select.

San Diego, Calif.

Bee Gloves

Immediate Delivery!

Made from top grain cowhide. Positive protection. Guaranteed Satisfaction or your money refunded.
Price per pair $3.75
Sizes: Small, Medium and Large.

APIARY SUPPLY HOUSES WRITE FOR QUANTITY DISCOUNTS

KING * MOORE COMPANY
7034 No. Figueroa St., Los Angeles, Calif.

Three Banded Italian
QUEENS
Of Highest Quality

* * * * *

1 to 24, $1.00 each;
25 up 80c each.

Pure mating and live delivery guaranteed.

* * * * *

E. R. RALEY
Box 1610, Daytona Beach, Fla.

ITALIAN

Leather Colored Queens
Also packages

Lynn Williams
Oroville Route 3 Calif.

When writing to Advertisers mention Gleanings

PUETT'S QUEENS

$1.00

Three Banded Italians

You Can't Beat the Best.

Puett Company

Hahira, Georgia

CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers — 10% to 40% ahead of the average Italians. Foundation stock from the mountainous region of Terek, Caucasus.

CARNIOLANS

Build up rapidly even during unfavorable springs. Prolific at all times, very gentle, best of workers, 35th year with them.

PRICES: Untested queens .... $1.00 each

Tested queens ..... 1.75 each
Queens by airmail, 6c extra per queen

Replace your poor and failing queens during September.

Albert G. Hann, Glen Gardner, N. J.

Northern Bred
Leather Colored Italian Queens
75c each

Prompt service and queens mailed to you in our adjustable introducing cage.
No charge for clipping
Rt. 2 - Box 7
Diemer Bee Co.
Liberty, Mo.

SEPTEMBER SNACKS

(Continued from page 476)

together; cut in shortening until mixture resembles coarse cornmeal. Add first mixture, stirring until a soft dough is formed. Turn onto floured board, knead lightly, and shape into a roll. Divide into 12 equal pieces. Shape into balls and flatten out to ½-inch thickness. Place on greased pan and bake in moderately hot oven, 400 degrees F., about 25 minutes. Brush with honey and melted butter before baking.

Honey Apple Butter Drops

One-half cup shortening, 1 cup honey, 2 eggs, 1½ cups apple butter, 2 cups quick oatmeal, 2 cups sifted flour, 1 teaspoon salt, 1 teaspoon soda, 1 teaspoon baking powder, and ½ teaspoon cinnamon.

Blend shortening and honey together, then beat in the eggs. Sift together, flour, salt, soda, baking powder, and cinnamon. Stir in apple butter, then oatmeal and sifted ingredients. Drop by spoonfuls on greased cookie sheets. Bake in moderately hot oven, 350 degrees F., 15 to 20 minutes.

Honey Oatmeal Cookies

One-half cup shortening, 1 cup honey, 1 egg, 1½ cups sifted flour, ½ teaspoon soda, ½ teaspoon salt, 4 tablespoons sour milk, 1⅔ cups oatmeal, ½ cup chopped nuts, and 1 cup raisins.

Cream shortening, adding honey gradually. Stir in egg. Sift together dry ingredients. Add alternately with milk to the shortening and honey mixture. Stir in oatmeal, nuts, and raisins. Drop by spoonfuls on greased cookie sheets. Bake in moderately hot oven, 350 degrees F., 15 to 20 minutes.

Aurora, Nebr.

ITALIANS! QUEENS! CAUCASIANS!

Daughters of Queens bred for Resistance — Bred to Italian Drones
All three races bred in separate yards
2-lb. package bees with queen, $4.00; 3-lb. package bees with queen, $5.00.
Extra Queens, $1.25 each. Booking orders for 1947
OVER 25 YEARS A SHIPPER IN U. S. A. AND CANADA
Sulfathiazole used in feed at no extra cost to you
MASTER MIX POLLEN made from Soybean flour, Cottonseed meal, Brewer's yeast, Skim milk, Natural pollen, Invert sugar, and Sulfathiazole. 10-pound pail, $2.50; six pails, $13.50; Send for FREE CIRCULARS.
BLUE BONNET APIARIES, Rt. 2, Box 23, WESLACO, TEXAS

HONEYBEE ACTIVITY IN SETTING RED CLOVER SEED

(Continued from page 469)

trip will be made to each farm to obtain seed yields from quadrat samples at various locations in the fields. Head samples will be taken at several strata within each field to determine the percent seed set in relation to distance removed from the colony. Finally, head samples will be taken from nearby farms within a radius of five miles to determine the percentage seed set at varying distances to exceed the normal distance that bees may be expected to range in their flight.

When these data have been secured it is hoped that a better conclusion can be reached on the value of honeybees as pollinators of red clover. It should be remembered, however, that these results will measure the conditions on only a limited number of farm situations in a single season. To obtain an accurate evaluation of the benefits of honeybees to red clover seed production studies of a similar nature must be conducted over a period of several years to sample variations in climatic and other factors. We do believe, however, that a significant start has been made in bringing together the mutual interests of the farmer and the beekeeper.

ITALIAN QUEENS

Three Banded Northern
Bred for business
Safe arrival by return mail if possible
49th breeding season
Unt., $1.00; 6, $5.50; 12, $11.00;
Sel. Unt., $1.25.

I. F. Miller
Warren, Pa. Route 3.

PACKAGE BEES AND QUEENS

Leather Colored Italians
Bred for Production

Prices of Package Bees and Queens

Lots of	2 lb.	3 lb.	Ex. Queen
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

Terms: 25% deposit to book order, balance ten days before shipping date. We replace any bees that die in transit if it is our fault. If it is the carriers' fault, file claim with them. We are now shipping. Old customers will be given preference.

The Island Apiary

Collier City, Fla.

Australian Beekeeping News
The Leading Bee Journal of the
Southern Hemisphere is the

"AUSTRALASIAN BEEKEEPER"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for 5 shillings (Australian) at your Post Office.

Write now to the Editor, P. O. Box 20, West Maitland, New South Wales, Australia

Hardy — High Producing — Gentle

St. Romain's "Honey Girl" Italians

	1 to 4	5 to 11	12 to 49	50 to 99	100 up
Queens	**$1.00 ea.**	**90c ea.**	**85c ea.**	**75c ea.**	**70c ea.**

* * * * *

Prompt service. Live delivery. Certificate of Inspection.

St. Romain's "Honey Girl" Apiaries, Moreauville, La.

ITALIAN BEES AND QUEENS

• • • • •

It is our aim and pleasure to ship you good bees, young laying queens, good weight packages, and to ship orders on specified dates.

We advise you to place your order for bees and queens as soon as possible for 1947 delivery. We are booking orders now, subject to prevailing prices for 1947.

We guarantee safe delivery on bees and queens. Queens clipped at no extra cost.

• • • • •

Price List

QUEENS 85c through October 31st Postpaid

Quantity	1 to 24	25 to 49	50 to 99	100 up
2 lb. pkg. with queen	**$4.15**	**$4.05**	**$4.00**	**$3.70**
3 lb. pkg. with queen	**5.15**	**5.05**	**5.00**	**4.70**
4 lb. pkg. with queen	**6.15**	**6.05**	**6.00**	**5.70**
5 lb. pkg. with queen	**7.00**	**6.90**	**6.85**	**6.65**
Tested Queens	**2.10**	**2.05**	**2.00**	**1.75**
Untested Queen	**1.35**	**1.30**	**1.25**	**1.15**

Queenless Packages, deduct $1.10 per package

Package bees f. o. b. — Queens Postpaid

TANQUARY HONEY FARMS, Inc., Lena, S. C.

J E N S E N ' S

Super Quality Q U E E N S
"Magnolia State" Strain
Italians only

No more queens of tested parentage this season, but expect to have increased output of this stock in 1947.

September will close our season, so if you want to use Jensen queens in colonies needing requeening this fall, don't wait any later as we may have to disappoint you.

Thanks to all of you who helped make this a most successful season, and we hope the results you obtain through the use of our bees, queens, and service will be highly satisfactory to you.

Orders being placed fast already for 1947 subject to change in prices.

Prices for balance of season:

Queens: 1-24, $1.10; 25-99, $1.00; 100-up, 90c each

Jensen's Apiaries

Macon, Miss.
"Where Quality Reigns Supreme"

Leather Italian Queens

We are proud of the reputation our bees have made for themselves and for us.

We can now guarantee our bees to be of the highest production stock available today, and that our bees will not swarm unless badly neglected. We guarantee unconditionally that there is no gentler bee available anywhere.

We will gladly replace any queen that does not live up to this statement after introduction. Replacement made immediately if queens arrive dead or in poor condition.

Sent clipped or by air mail at no extra cost

2 lb. pkg. with queen - $3.60
3 lb. pkg. with queen - 4.50
Queens, $1.00 - any number.

The Rich Honey Farms

Jeanerette, Louisiana

Above photo shows a portion of one of our queen yards of 10,000 nuclei

1947 Package Bees and Queens 1947

—Italians—

Our capacity for 1947 has been stepped up to 20,000 packages. Queens in proportion. Your continued loyal patronage, in the past, has been responsible for our growth. May we continue serving you?

Any number young queens
are still available — $1.25 each

Overbey Apiaries Bunkie, La.

ADVERTISING HONEY

(Continued from page 475)

know what I was doing.".

At the end of the demonstration on the second day we found that our total sales showed a tidy profit that more than paid our demonstrator's salary, which we had made high to insure a good job.

Although it was profitable for those two days, repeat sales made the venture doubly successful. In fact, sales due to demonstrations made it necessary to service this market every week instead of every two weeks that we had served similar markets. Sales within the next month showed this market the most valuable honey seller of all the stores in which we were offering our product.

Honey Advertising Needed for Future

Today the nation's honey supply is far below the demand for it, but it will not always be this way. Soon there will be no sugar shortage, and there will be the introduction of several new invert syrups with nation-wide advertising campaigns.

Will honey retire to its rather unimportant place upon the inaccessible shelves of the grocery stores? Or, will its natural goodness, the excellent work of the American Honey Institute, and the consistent advertising of every individual beekeeper in this country keep honey in demand as it is today?

Even though I have no crop of honey to market this year, I am still extolling the virtues of honey to everyone I meet. Many others are doing the same. It is a challenge! We must keep honey before the consumer as an important and necessary product.

Maple Shade, N. J.

[The method used by Mr. Stricker does work. During the fall of 1916 the editor (with the help of his wife) put in 149 live bee window displays in St. Louis and East St. Louis, in cooperation with the Louis Hilfer Company, a food broker. Ten colonies of bees used to fill observation hives were kept on a flat roof a few blocks from the downtown district. On one occasion the observation hive of bees and window filled with different sized jars of honey, and also comb honey, attracted so much attention in a downtown store that the police had to keep the crowd moving to avoid a congestion. Ed.]

LIVE AND LEARN

(Continued from page 483)

Above all, be sure that the honey stores are ABOVE THE CLUSTER. That's what caused my loss last year. The bees could not move DOWN in that weakish colony that had no protection and starved out with honey ten inches from the cluster.

Just wait until the heavy packing boys get through kicking that one around.

When writing to Advertisers mention Gleanings

Three Banded Queens - Italian Leather Colored Strain

Aug. 1 to Oct. 31, 65c each. Postpaid Airmail

Prompt service. We satisfy.

GOOCH APIARIES

Farmersville, Texas

Send for free catalog—hundreds more!

—GOT A HOBBY?—

Keep up with the latest developments in your field. Here's a group of magazines that specialize in a particular subject! Send your subscription today!

Gleanings in Bee Culture, $1.50 per year.
Beekeepers' Item, $1.
American Bee Journal, $1.50.

DAIRYING
American Dairy Goat News, m., $1.
Dairy Farmers' Digest, $1.

FARMING
The Country Book, quarterly, $1.
Farmers' Digest, m., $1.

FRUIT
Better Fruit, m., $1.
Eestern Fruit Grower, $1.

LIVESTOCK
Chester White (Hog) News, m., $1.
Southeastern Cattleman, $1.
Pacific Stockman, $1.
The Sheepman, $1.
Arizona Stockman, m., $1.50.
The Polled Hereford, m., $2.
Coastal Stockman, m., $1.

HORSES
The Horse, bi-monthly, breeding, schooling, training, horse sports, $5.
Thoroughbred (Horse) Record, w., $5.
Rider and Driver, m., horse-sport-pleasure, $5.
Spokesman and Harness World, m., (for harnessmakers) $1.

PIGEONS
American Pigeon Journal, Squab-fancy, $1.50.
Pigeon News, fancy only, $1.50.

RABBITS
Small Stock (rabbits, cavies), $1.
American Rabbit Journal, m., $1.
Inter. Comm. Rabbit Journal, $1.
American Angora Rabbit Magazine, $1. a year.
Calif. Rabbit Mag., m., $1.
Calif. Rabbit News, m., $1.
The Rabbit Raiser, m., $1.
Amer. Small Stock (Rabbit) Farmer, m., 50c.

OTHER SPECIALTIES
The Soybean Digest, $2.
New Agriculture, (sugar beets only), $2.
Small Com. Animals & Fowls, 50c.
Modern Game Breeding, m., pheasants, $3.
Black Fox Mag., m., fox, mink, $2.
Canary Journal, m., $2.
Tailwagger, m., (Dogs) $2.50
Canary World, m., $1.50.

All magazines are monthlies unless otherwise noted; prices are for one full year. Satisfaction guaranteed. All orders are handled promptly and acknowledged. Rush your subscription today. Remit in any way convenient to you.

MAGAZINE MART

Dept. G B Plant City, Florida

Sample copies at single copy prices.

BEHAVIOR OF THE BEE CLUSTER

(Continued from page 473)

Rate of Metabolic Activity of the Colony

The normal rate of bodily activity of a healthy swarm of bees, say 5 pounds, in a standard 10-frame 2-story Langstroth hive is approximately 188 British thermal units **per hour** with an outside temperature of 45 degrees and an inside hive temperature of 58 degrees, the hive having 14.52 square feet of radiating surface made from 1-inch thick soft pine lumber (and our beehives lose more than that because they are less than 1 inch thick). This is the optimum and most desirable winter condition in which the colony consumes about 3 pounds of honey **monthly.**

At 45 degrees below zero, in the same hive, with all conditions remaining the same, the bees consume more honey and can, and do produce, for a short time, 1400 British thermal units per hour which is equal, in foot pounds, 1400 times 776, or 1,089,200 foot pounds per hour. That means the lifting of a weight of one pound to the height of 205 miles in one hour! And this is done on the consumption by the colony of 1/32 of a pound of honey; that is on ½ ounce or 218.75 grains of honey. That is an astounding figure! How do the bees do it?

(This will be considered further in the final article of this series)

TALKS TO BEEKEEPERS

(Continued from page 509

cially advisable in view of the scarcity of sugar at the present time.

Beekeepers in some areas, where there has been a crop failure, seem to be rather downhearted nowadays. We can't blame them. It is a disappointment to have a crop failure, especially after one has spent so much time and energy in getting colonies built up for the flow. The past season in some areas has been decidedly disappointing. However, in regions where a fall honey flow usually occurs, the beekeepers who have not yet secured a surplus (this is being written August 16) should not give up. They may yet secure some surplus.

FALL REQUEENING

After the main honey flow is over is one of the Best Times of the year to Requeen Bees. It insures a vigorous young queen that will lay late in the fall and early in the spring, making wintering more successful, also having a good strong colony next spring when you need it. We have lots of good queens ready to mail out at once.

ITALIANS OR CAUCASIANS

- Prices -

Lots of: 1-24	**$1.10**
Lots of: 25-99	**1.00**
Lots of: 100-up	**.90**

No charge for Air Mail or Clipping

Your money refunded or another queen for any that is not satisfactory

The Stover Apiaries

Mayhew, Miss.

HONEY WANTED

WHITE & AMBER EXTRACTED WANTED

We pay the highest OPA ceiling prices. Prompt remittance.

BEESWAX

Send for shipping tags. We are always BUYING and PAYING the HIGHEST MARKET PRICE.

OLD COMB AND CAPPINGS

We use steam hydraulic wax presses that extract 100% of the wax and our rendering charges are very nominal. We charge only 2 cents a pound for wax rendered when your shipment of old comb weighs 100 pounds or more, 3 cents a pound on smaller shipments. Send for shipping tags.

WAX WORKED INTO FOUNDATION

You save BIG money having your wax worked into foundation. Send for our money-saving prices.

QUEENS

Ultra Violet Ray treated produce gentler bees. 20 to 45% more prolific. You'll want to head all your hives with treated queens. Price, $1.25 each, cash. Worth much more.

PACKAGE BEES

3-lb. package Bees and Queen, $5.00, plus postage. Prompt shipments.

Send for Our Money-Saving Catalog

THE FRED W. MUTH COMPANY

PEARL & WALNUT STEETS, CINCINNATI 2, OHIO.

Telephone MAin 3068

YORK'S PACKAGE BEES AND QUEENS
QUALITY BRED ITALIANS

During the remainder of the season we will continue to supply a limited quantity of packages for late increase or booster bees for backward colonies that may need help. We have ample good queens to supply your needs in large or small lots for prompt shipments. Foundation stock proven producers, buy wisely.

PACKAGE BEES WITH QUEENS

Quantity	1 to 2	3 to 27	30 to 96	99 up
2-lb. pkgs.	$4.25 each	$4.10 each	$3.95 each	$3.75 each
3-lb. pkgs.	5.25 each	5.10 each	4.95 each	4.75 each
Queens	1.30 each	1.25 each	1.25 each	1.25 each
Tested Queens	2.60 each	2.50 each	2.50 each	2.50 each

Queenless packages, deduct $1.10 per package.

We are receiving many inquiries and orders for 1947. Due to this fact, we believe it will be necessary to make plans early. We will book your orders now subject to prevailing prices for 1947. Just what may happen between now and another season we do not know, but prices can not be lower unless general conditions will permit. Since beginning of present season cost of production has soared due to advances in price on material and other items which had to be absorbed. This, of course, cannot be continued indefinitely and we feel that a slight increase in price on bees for the coming season will be necessary to maintain quality production. Otherwise, quality may be seriously affected.

Thanking all of you, old and new customers, for making this one of our greatest seasons. We trust we may continue to serve you with the best. Your patronage is always highly appreciated.

York Bee Company, Jesup, Georgia, U. S. A.
(The Universal Apiaries)

HOLLOPETER'S QUEENS

Situated in the northern buckwheat belt we produce our best queens in the fall months, giving very prompt service.

This has been a hard season on queens and much requeening is necessary to put each colony in shape for another season.

Whether a new or old customer, now is a good time to get

HOLLOPETER'S HEALTHY
HUSTLING ITALIANS

Safe arrival and satisfaction guaranteed
Untested mated and laying queens:
1-9, $1.00; 10-24, 95c; 25-49, 90c; 50-99, 85c; 100-up, 80c each.

White Pine Bee Farms
Rockton, Penna.
Commercial queen breeders since 1911

It is never too late - -

to get the help which is available to you in daughter queens of "DR" stock. It will be a real help in your fight to control American foulbrood.

The performance of this stock is why beekeepers are placing repeat orders for larger numbers of queens. Satisfaction is what you get with the use of this stock.

This stock has been improved each year by scientific selection. No other stock can offer the quality of parentage, of rearing methods, and of apiary testing service. So why not buy those queens which will give you the greatest value.

Write for shipping dates.

No change in prices for this season.

Iowa Beekeepers Association
State House Des Moines 19, Iowa

NOTICE

Write for prices for having your wax made up or outright purchase of

SCHMIDT'S

Economy Foundation

Not excelled for quality strength and workmanship

Satisfaction Unconditionally Guaranteed

Oscar H. Schmidt & Sons

R 4. Bay City, Mich.

HONEY CONTAINERS

Order early, avoid disappointment
Stocks are complete at present

UTILITY GLASS JARS

10 lb. jars per carton of 4	$0.45
5 lb. jars per carton of 6	.42
2 lb. jars per carton of 12	.42
1 lb. jars per carton of 24	.73
½ lb. jars per carton of 48	1.28

TIN CONTAINERS

5 lb. pails per carton of 50 ...	$3.35
10 lb. pails per carton of 50 ...	4.95
60 lb. sq. cans per box of 2 ...	1.00
60 lb. sq. cans in bulk, each ...	.32
60 lb. sq. cans per carton 24 ...	7.44

also
Comb honey packages
and shipping cases

Paste....30 oz. can....60c

Label samples mailed on request

5% discount on all orders over $50.00

Prices subject to O. P. A. ceilings

August Lotz Company
Manufacturers and Jobbers
Bee Supplies
Boyd Wisconsin

POLLEN SUBSTITUTES

	1 lb.	5 lb.	10 lb.	25 lb.
Brewer's yeast and soy flour expeller mixed 1 to 6		$0.75	$1.50	$3.00
Brewer's yeast	$0.40	1.50	2.75	5.50
Soy flour			1.40	2.50
Dry skim milk	0.40	1.50	2.75	5.75

Write for prices in larger quantities. Include postage if you wish it by parcel post. All prices collect, Bainbridge, N. Y.

M. Y. S. Company, Bainbridge, New York.

the Hubbard APIARIES

WRITE FOR FREE CATALOG

Quality Bee Supplies Factory Prices
Prompt Shipment from Stock
Satisfaction Guaranteed

THE HUBBARD APIARIES

Manufacturers of Bee Supplies

ONSTED, MICHIGAN

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